EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of January, 1889.

Mean Height of Barometer,	30·150 inches.
Maximal Height of Barometer (on 3rd, at 9 a.m.),	30·711 „
Minimal Height of Barometer (on 9th, at 3 p.m.),	29·200 „
Mean Dry-bulb Temperature,	41·9°.
Mean Wet-bulb Temperature,	40·5°.
Mean Dew-point Temperature,	38·7°.
Mean Elastic Force (Tension) of Aqueous Vapour.	·238 inch.
Mean Humidity,	89·0 per cent.
Highest Temperature in Shade (on 18th),	56·2°.
Lowest Temperature in Shade (on 3rd),	27·1°.
Lowest Temperature on Grass (Radiation) (on 3rd),	22·7°
Mean Amount of Cloud,	69·4 per cent.
Rainfall (on 16 days),	2·213 inches.
Greatest Daily Rainfall (on 11th),	1·221 inches.
General Directions of Wind,	W., S., N.W.

Remarks.

As happened also in January, 1888, during the greater part of the month, the weather was open although changeable in Ireland and in Scotland, colder in England, and very cold in France and Germany. The type of distribution of atmospherical pressure was chiefly anticyclonic in the south and south-east, cyclonic in the far north and north-west.

In Dublin the mean temperature (42·4°) was perceptibly above the average (41·3°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 41·9°. In the twenty-four years ending with 1888, January was coldest in 1881 (M. T. = 32·2°) and warmest in 1875 (M. T. = 46·6°). In 1867, the M. T. was 35·7°, and in 1865 it was 37·8°. In 1871 and in 1886, the M. T. was 37·9; in the year 1879 (the cold year), it was 35·3°. In 1888, the M. T. was 42·1°. As a general rule, January in Dublin is not colder, but rather a shade warmer, than December. This is owing to the full development in January of a winter area of low pressure over the Atlantic, to the north-westward of the British Isles, and to a resulting prevalence of S.W. winds in their vicinity. January, 1889, proved an exception to this rule, the M. T. being 1·2° below that of December, 1888, (43·6°).

The mean height of the barometer was 30·150 inches, or as much as 0·269 inch above the average value for January—namely, 29·881 inches. The mercury rose to 30·711 inches at 9 a.m. of the 3rd, and fell to 29·200 inches at 3 p.m of the 9th. The observed range of atmospherical pressure was, therefore, as much as 1·511 inches—that is, a little over one inch and one-half. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 41·9°, or 1·4° below the value for December, 1888; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 41·6°, or 0·8° above the average mean temperature for January, calculated in the same way, in the twenty years, 1865–84, inclusive (40·8°). The arithmetical mean of the maximal and minimal readings was 42·4°, compared with a 23 years' average of 41·3°. On the 18th, the thermometer in the screen rose to 56·2°—wind W.S.W.; on the 3rd, the temperature fell to 27·1°—wind also W.S.W. The minimum on the grass was 22·7° on the same date. The rainfall was 2·213 inches, distributed over 16 days. The average rainfall for January in the twenty-three years, 1865–87, inclusive, was 2·241 inches, and the average number of rainy days was 17·7. The rainfall and the rainy days, therefore, were both slightly below the average. In 1877 the rainfall in January was very large—4·322 inches on 25 days; in 1869 also 4·258 inches fell—on, however, only 18 days. On the other hand, in 1876, only ·406 of an inch was measured on but 9 days; and in 1880, the rainfall was only ·563 of an inch on but 8 days. In January, 1886, 3·244 inches of rain were measured on as many as 26 days, in 1887 (the dry year) 1·816 inches fell on 16 days, and in 1888 1·247 inches fell on 9 days.

A lunar halo was seen on the 14th. The atmosphere was foggy on each of the first six days, as also on the 22nd. High winds were noted on 8 days, reaching the force of a gale on two days—the 11th and 18th. Hail fell on the 9th and 11th, and snow or sleet also on the 11th. Temperature exceeded 50° in the screen on 8 days, compared with 10 days in December, 1888; while it fell to or below 32° in the screen on only 3 nights, compared with 5 nights in December. The minima on the grass were 32°, or less, on 16 nights, compared with 20 nights in December.

Cold, quiet, foggy weather prevailed during the greater part of the week ended January 5th, 1889, in the centre and east of Ireland, as well as in England. In the west of Ireland and in Scotland S.W. winds and cloudy, mild weather were experienced. From Tuesday, the 1st, to the close of the week a band of high atmospherical pressure extended from North Germany across England and Ireland, while the barometer was low over the Norwegian Sea and Scandinavia in the north and over the Mediterranean in the south. Sharp frosts prevailed within the area of high pressure, but it was very mild on the Atlantic coasts of Ireland, Scotland, and Norway. In Dublin the barometer rose to 30·711 inches at 9 a.m. of Thursday, the 3rd (wind W.S.W.). Thick rime formed on Friday and Saturday. Fogs were observed on Wednesday and Saturday. Rain fell on Saturday night to the amount of ·021 inch.

As regards the second week (6th–12th inclusive), except on Thursday, the 10th, which was a fine, dry, bracing day, the weather was either cloudy and damp, or rainy. At the beginning of the week intense frost prevailed in central and eastern England—at 8 a.m. of Sunday, the 6th, the thermometer read 15° at Cambridge, 21° at Loughborough, and 22° in London. This was a dull, damp, foggy day in Dublin. Gradients for southerly winds became pronounced over Western Europe, temperature rose and rain fell very generally. On Wednesday the wind shifted to W. and N.W. in Ireland with a downpour of rain and hail and an abrupt fall of temperature. On Friday afternoon there was a S.E. gale, and immense quantities of rain, hail, and sleet fell in Dublin and its vicinity. Saturday was a dull day, with snow in England. In Dublin the mean height of the barometer was 29·641 inches, pressure varying from 30·062 inches at 9 a.m. of Sunday (wind W.) to 29·200 inches at 3 p.m. of Wednesday (wind W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 40·2°, or 6·1° above that for the previous week. The mean of the daily highest and lowest temperatures was 40·8°. The absolute maximum in the screen was 50·5° on Tuesday (wind S.); the absolute minimum was 31·9° on Friday (wind calm). Rain fell on five days (including hail on two days, and sleet on one day) to the large amount of 1·773 inches. Of this quantity, 1·221 inches were measured on Friday and ·455 inch on Tuesday. There was a fog on Sunday, and a gale was recorded on Friday.

In the third week (13th-19th inclusive) open, but changeable weather was prevalent. Atmospherical pressure was generally lower to the north-westward than to the southeastward, and in consequence the winds were chiefly southerly to westerly. On Friday morning the force of a gale was reached, but otherwise the winds were not strong. On Wednesday a V-shaped depression crossed Ireland, causing a sudden shift of wind from S. to N.W.; but it soon backed again to S.W. A partial eclipse of the moon was seen in a clear sky on the morning of Thursday, the 17th. Showers fell on the afternoons of Friday and Saturday. Very little frost occurred in the British Isles, and on Friday very high temperatures were recorded in Ireland and Scotland. The weather remained persistently cold in Germany and eastern France. At 8 a.m. of Tuesday the thermometer was 4° at Berlin. The barometer was extremely high over Russia during this week; at Moscow it rose to 31·23 inches on Monday morning. In Dublin the mean atmospherical pressure was 30·124 inches; the extremes were—lowest, 29·720 inches, at 9 a.m. of Wednesday (wind, S.S.E.); highest, 30·401 inches, at 9 a.m. of Saturday (wind, W. by S.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 43·6°. The arithmetical mean of the highest and lowest daily temperatures was 44·8°. On Friday the screened thermometers rose to 56·2° (wind, W.S.W.); on Thursday, they fell to 35·9° (wind, S.W.). Rain fell on four days to the amount of ·179 inch—the maximal fall in 24 hours was ·080 inch on Tuesday (wind, S.). A lunar halo was seen on Monday evening, the 14th.

Throughout the week ending Saturday, the 26th, an anticyclone, or area of high atmospherical pressure, lay over Ireland and the Atlantic Ocean off the west coast of this country. At the same time, extensive and deep depressions passed eastwards across Scandinavia and Lapland, while areas of relatively low pressure lay also over the Mediterranean Basin. Light or moderate N.W. (N. to W.) winds prevailed in the United Kingdom, accompanied by comparatively mild and dry, but cloudy weather. At 8 a.m. of Friday the barometer varied from 30·57 inches at Valentia Island, in Kerry, to 28·59 inches at Haparanda, on the Gulf of Bothnia—rather steep gradients for N.W. winds consequently prevailed over Northwestern Europe. In Dublin the mean height of the barometer during the week was no less than 30·510 inches, pressure ranging from 30·347 inches at 9 a.m. of Sunday (wind, W.), to 30·620 inches at 9 a.m. of Tuesday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 44·0°; the mean of the highest and lowest daily temperatures was 44·7°. The thermometers in the screen rose to 50·1° on Saturday (wind, W.), having fallen to 35·0° on Tuesday (wind, W.N.W.). Rain fell in measurable quantity on two days—Tuesday and Saturday—the total precipitation being ·048 inch, of which ·038 inch fell on Saturday evening, as a shallow secondary depression passed over Dublin from N.W. to S.E. Very cloudy skies prevailed during the week, the percentage amount of cloud at 9 a.m. and 9 p.m. being 87. Only on Tuesday was there much bright sunshine. The mildness of the northerly and northwesterly winds which prevailed was due to their origin in an oceanic anticyclone.

The last five days of the month were chiefly mild, changeable, and cloudy, and rain fell frequently although not in large quantity. On Tuesday, the 29th, a remarkable series of V-shaped depressions crossed the United Kingdom, causing a shift of wind from S.W. to N.W., squalls, showers, and a brisk fall of temperature. At the close of the month steep gradients for westerly winds prevailed over Northwestern Europe, and the weather was generally mild and damp.

At Greystones, Co. Wicklow, the rainfall in January, 1889, was 3·57 inches, distributed over only 8 days. Of this quantity 1·64 inches fell on the 11th, and ·96 of an inch on the 8th.

9382	35·6	2/2	W., NW.	3·3	76%	—	—	—	—	—	—	—	
7	8	9	10	11	12	13	14	15	16	17	18	19	

EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of February, 1889.

Mean Height of Barometer,	29·991 inches.
Maximal Height of Barometer (on 4th, at 9 p.m.),	30·474 „
Minimal Height of Barometer (on 10th, at 6 p.m.),	29·189 „
Mean Dry-bulb Temperature,	39·6°.
Mean Wet-bulb Temperature,	37·8°.
Mean Dew-point Temperature,	35·1°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·208 inch.
Mean Humidity,	84·1 per cent.
Highest Temperature in Shade (on 1st),	55·0°.
Lowest Temperature in Shade (on 11th),	21·7°.
Lowest Temperature on Grass (Radiation) (on 11th),	14·9°
Mean Amount of Cloud,	65·8 per cent.
Rainfall (on 20 days),	2·449 inches.
Greatest Daily Rainfall (on 10th),	·742 inch.
General Directions of Wind,	N.W., W.

Remarks.

This was an unsettled, windy, wet, and cold month. North-westerly winds preponderated, and while the barometer was often high off the W. and S.W. of Ireland, deep atmospherical depressions passed south-eastwards across Scandinavia and the North Sea, producing cold N.W. winds and frequent showers of sleet and hail. On the 10th a severe snowstorm occurred, and the weather was generally inclement.

In Dublin the mean temperature (40·3°) was much below the average (43·0°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 39·6°. In the twenty-four years ending with 1888, February was coldest in 1873 (M. T. = 37·9°) and warmest in 1869 (M. T. = 46·7°). In 1886, the M. T. was 39·7°, in the year 1879 (the cold year), it was 40·1°, and in 1888 it was as low as 38·6°. As a general rule, February in Dublin is only a shade colder than March.

The mean height of the barometer was 29·991 inches, or 0·129 inch above the average value for February—namely, 29·862 inches. The mercury rose to 30·474 inches at 9 p.m. of the 4th, and fell to 29·189 inches at 6 p.m of the 10th. The observed range of atmospherical pressure was, therefore, 1·285 inches—that is, a little over one inch and a quarter. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 39·6°, or 2·3° below the value for January, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 39·4°, or 3·1° below the average mean temperature for February, calculated in the same way, in the twenty years, 1865–84, inclusive (42·5°). The arithmetical mean of the maximal and minimal readings was 40·3°, compared with a 23 years' average of 43·0°. On the 1st, the thermometer in the screen rose to 55·0°—wind W.S.W.; on the 11th, the temperature fell to 21·7°—wind W.N.W. The minimum on the grass was 14·9° on the same date. The rainfall was 2·449 inches, distributed over no fewer than 20 days. The average rainfall for February in the twenty-three years, 1865–87, inclusive, was 2·183 inches, and the average number of rainy days was 17·3. The rainfall and the rainy days, therefore, were both considerably above the average. In 1883 the rainfall in February was large—3·752 inches on 17 days; in 1879 also 3·706 inches fell on 23 days. On the other hand, in 1873, only ·925 of an inch was measured on but 8 days; and in 1887, only ·541 inch of rain fell on 11 days. The rainfall in 1887 was much the smallest recorded in February for very many years. Snow or sleet fell on the 2nd, 8th, 9th, 10th, 25th, 26th, 27th, and 28th. Hail fell on the 1st, 4th, 8th, 10th, 24th, 26th, and 27th. The atmosphere was foggy on the 15th, 24th, 27th, and 28th. High winds were noted on 13 days, reaching the force of a gale on five days—the 1st, 2nd, 3rd, 8th, and 13th. The temperature exceeded 50° in the screen on 8 days, compared with the same number of days in January; while it fell to or below 32° in the screen on only 4 days, compared with only 3 in January, but with 12 in February, 1888. The minima on the grass were 32°, or less, on 21 nights, compared with 16 nights in January. On 7 days the thermometer did not rise to 40° in the screen.

On Friday, February 1, a fresh westerly gale prevailed, and temperature—which had been very high during the previous *night* (55° in Dublin)—gave way rapidly with squalls of rain and hail. Saturday, the 2nd, proved the most inclement day as yet felt in the present winter—a fresh westerly gale blowing with frequent falls of snow and bitter cold. The thermometer rose to 55·0° on the early morning of Friday (wind, W.S.W.), and fell to 33·0° on Saturday evening (wind W.). At 8 a.m. of this day the barometer was down to 28·46 inches at Sumburgh Head in the Shetlands. Strong N.W. gales, snow and hail, thunder and lighting prevailed in many parts of the Kingdom, and in Dublin ·352 of an inch of rain fell in the form of snow.

The weather was very unsettled and changeable during the week ended Saturday, the 9th. Severe extensive and deep depressions travelled south-eastwards across Northwestern Europe, causing rapid changes of temperature, and westerly to northerly gales, with frequent showers of rain or hail and snow. On Sunday a very deep depression was passing down the North Sea, accompanied by severe northerly gales and thunder and lightning in many parts of the United Kingdom. In the rear of the disturbance the barometer rose with great rapidity—nearly an inch and a half at Aberdeen in the 24 hours ending 8 a.m. of Monday. During the next two days areas of low pressure crossed Scandinavia from N.W. to S.E., and the weather was dull, damp, and showery. On Wednesday night a subsidiary depression passed rapidly across the British Islands in the same direction—rain and hail squalls were reported from many stations. During Friday and Saturday another very deep depression travelled southeastwards down the North Sea, the accompaning gales being of great intensity. In Scotland snow fell heavily, with keen frost, and in Ireland the air became very dry and cold. Sharp frost set in on Saturday. In Dublin the mean height of the barometer was 29·963 inches—pressure varying from 29·471 inches at 9 a.m. of Sunday (wind, W.N.W.) to 30·474 inches at 9 p.m. of Monday (wind, N.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 39·1°, or 6° below the value for the previous week. The arithmetical mean of the highest and lowest daily temperatures was 39·8°. Temperature in the screen rose to 49·5° on Wednesday (wind, W.) and Thursday (wind, W.N.W.), and fell to 29·0° on Saturday (wind, N.W.). Rain fell on six days to the amount of ·242 inch, including ·117 inch entered to Wednesday. Hail and snow fell on two days.

Very changeable, inclement weather held during the greater part of the week ended Saturday, the 16th, which began with a snowstorm and ended with warmth and squalls. On Sunday two depressions crossed Ireland and England—the first from W. to E., the second from W.N.W. to E.S.E.—both travelling with great speed. In Dublin, fine dry snow began to fall at 6 a.m., with a temperature of 29·0°. As the forenoon wore on, the snowfall increased. In the afternoon a thaw occurred and frozen rain and hail were followed by rain and a shift of wind from S.E. to W. In the evening a further shift of wind to N.N.E. took place and snow and hail again fell heavily. On Monday morning there was an intense frost. Tuesday was again fair and frosty, but at night a lunar halo foretold a change. Wednesday was dull and rainy, and at night there was a fresh gale from W.S.W., temperature rising to 53·1°. Thursday and Friday were cool, quiet days, but on Friday evening there was again a lunar halo, and Saturday was rainy and squally to mild and fine. At Dungeness, in Kent, temperature rose 26° (from 18° to 44°) in the twenty-four hours ending 8 a.m. of Friday. In Dublin the mean height of the barometer during the week was 29·846 inches—pressure ranging from 29·189 inches at 6 p.m. of Sunday (wind, W.) to 30·367 inches at 9 a.m. of Tuesday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 37·3°, while the mean temperature derived from the daily maxima and minima was 37·5°. The thermometers in the screen fell to 21·7° on Monday (wind, W.N.W.) and rose to 54·7° on Saturday (wind, W.S.W.). The rainfall amounted to 1·127 inches on four days. Of this quantity, ·742 inch was the result of melted snow and hail on Sunday.

As regards the third week (17th–23rd inclusive), at first mild, soft, and cloudy, the weather afterwards became cooler, drier, and brighter, as barometrical gradients for northerly winds developed over Western Europe. Until Wednesday an anticyclone was found over Spain, the Bay of Biscay, and France; while areas of low pressure passed in a direction towards E. or S.E. across the Norwegian Sea and Scandinavia. Westerly winds and mild, cloudy weather prevailed during this period, except in the north of Sweden where the cold was very intense. On Thursday, the isobars ran nearly due N. and S., and the wind drew into N. with a general fall of temperature and cold showers in Great Britain. Next day a shallow depression passed southwards across Ireland, causing a higher temperature for the time being and showers. On Saturday the wind shifted to E. and became dry and searching—the relative humidity in Dublin falling to 64 per cent. at 9 p.m. In this city the mean height of the barometer was 30·301 inches—pressure ranging from 30·142 inches at 9 a.m. of Sunday (wind, W.S.W.) to 30·466 inches at 9 a.m. of Tuesday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 44·9°, while the mean of the daily maxima and minima was 45·8°. Temperature in the screen rose to 54·5° on Monday (wind, S.W.) and fell to 35·1° on Friday (wind, W.). Rain was registered on four days, the total quantity being ·109 inch, of which ·060 inch was credited to Friday. At 8 a.m. of Saturday, February 23rd, temperature in Western Europe ranged from—5° Fahr. at Hernosand in Sweden, 12° at Munich, and 19° at Lyons, to 47° at Belmullet and Valentia Island, Kerry.

Very inclement weather prevailed throughout the closing period of the month (from the 24th to the 28th, inclusive). Barometrical gradients for easterly (N. to E. and S.E.) winds held over Western Europe, so that a polar air-current held, temperature ruled very low, and snow and hail fell frequently and on the east coasts of Great Britain and Ireland in considerable quantity. In the West of Ireland, fine, bright, frosty weather prevailed for the most part, but in the east clouded skies and snow were experienced. At 8 a.m. of Thursday, the 28th, the thermometer was only 21° in the screen at Parsonstown, King's Co.

The rainfall in Dublin during the two months ending February 28th has amounted to 4·662 inches on 36 days, compared with 2·344 inches on 23 days during the same period in 1888, and a 23 years' average of 4·424 inches on 35·0 days. Double as much rain as fell in January and February of last year has fallen in the same months this year.

At Greystones, Co. Wicklow, the rainfall in February, 1889, was 2·69 inches, distributed over 14 days. Of this quantity 1·12 inches fell in the form of snow on the 10th. Since January 1st, 6·26 inches of rain have fallen on, however, only 22 days.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of March, 1889.

Mean Height of Barometer,	29·999 inches.
Maximal Height of Barometer (on 15th, at 9 p.m.),	30·546 „
Minimal Height of Barometer (on 19th, at 9 p.m.),	28·944 „
Mean Dry-bulb Temperature,	43·3°.
Mean Wet-bulb Temperature,	40·8°.
Mean Dew-point Temperature,	37·8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·231 inch.
Mean Humidity,	81·4 per cent.
Highest Temperature in Shade (on 28th),	58·3°.
Lowest Temperature in Shade (on 3rd),	31·0°.
Lowest Temperature on Grass (Radiation) (on 27th),	24·2°
Mean Amount of Cloud,	67·2 per cent.
Rainfall (on 17 days),	1·076 inches.
Greatest Daily Rainfall (on 19th),	·381 inch.
General Directions of Wind,	N.W., W.

Remarks.

This was a tolerably favourable month. North-westerly winds preponderated as in February, and while the barometer was often high off the W. and S.W. of Ireland, atmospherical depressions passed south-eastwards across Scandinavia and the North Sea, producing cold N.W. winds and frequent showers. The beginning of the month was cold, but some genial weather was experienced from time to time.

In Dublin the mean temperature (44·0°) was above the average (43·3°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 43·3°. In the twenty-four years ending with 1888, March was coldest in 1867 and 1883 (M. T. = 39·0°) and warmest in 1868 (M. T. = 47·3°). In 1876, the M. T. was 41·2°, in the year 1879 (the cold year), it was 42·5°, in 1888 it was as low as 39·8°. As a general rule, February in Dublin is only a shade colder than March. This is due to the fact that the Continental anticyclone embraces the British Isles and Scandinavia in March, causing easterly winds. In the present year, however, February was 3·7° colder than March.

The mean height of the barometer was 29·999 inches, or 0·076 inch above the average value for March—namely, 29·923 inches. The mercury rose to 30·546 inches at 9 p.m. of the 15th, and fell to 28·944 inches at 9 p.m of the 19th. The observed range of atmospherical pressure was, therefore, as much as 1·602 inches—that is, more than an inch and a half. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 43·3°, or 3·7° above the value for February, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 43·0°, or 0·3° above the average mean temperature for March, calculated in the same way, in the twenty years, 1865–84, inclusive (42·7°). The arithmetical mean of the maximal and minimal readings was 44·0°, compared with a twenty-three years' average of 43·3°. On the 28th, the thermometer in the screen rose to 58·3°—wind, W.S.W.; on the 3rd, the temperature fell to 31·0°—wind, S.E. The minimum on the grass was 24·2° on the 27th. The rainfall was only 1·076 inches, distributed, however, over 17 days. The average rainfall for March in the twenty-three years, 1865–87, inclusive, was 2·030 inches, and the average number of rainy days was 16·4. The rainfall, therefore, was much below the average, while the rainy days were slightly above the average. In 1867 the rainfall in March was very large—4·972 inches on 22 days; in 1888, 3·753 inches fell on 18 days; in 1866 also 3·629 inches fell on 21 days. On the other hand, in 1871, only ·815 of an inch was measured on 12 days; and in 1874 only ·953 inch fell, also on 12 days. In 1887 (the "dry year"), 1·485 inches of rain fell on 15 days. A solar halo appeared on the 6th. The atmosphere was foggy on the 1st, 2nd, 15th, and 27th. High winds were noted on 9 days, reaching the force of a gale on 4 days—the 20th, 23rd, 24th, and the 25th. Snow or sleet occurred on the 1st and 2nd; and hail fell on the 1st, 2nd, 8th, 21st, and 31st. The temperature exceeded 50° in the screen on 16 days, compared with 8 days in February, and the same number of days in January; while it fell to or below 32° in the screen on 5 days, compared with only 4 in February and only 3 in January, but with 11 in March, 1888. The minima on the grass were 32°, or less, on 14 nights, compared with 21 nights in February and 16 nights in January. On 2 days the thermometer did not rise to 40° in the screen.

The month opened with very severe weather. At 8 a.m. of Saturday, the 2nd, the thermometer stood at 20° at Aberdeen, and 22° at Parsonstown. The reading in Dublin at this time was 32°.

The weather of the week ending Saturday, the 9th, was very changeable and for the most part cold. At the beginning a keen S.E. wind blew, with hazy, dry weather. On Monday, the 4th, a close drizzling rain prevailed, while temperature did not exceed 40·1°. The two following days were chiefly fine and much milder, the thermometer reaching a maximum of 50·4° on Wednesday. On this day the barometer gave way decidedly, and next morning two areas of low pressure were found—one off the north of Scotland, the other over St. George's Channel. The latter system caused the wind to shift to N.E. and N. on Thursday, with dull, cool weather in Ireland. Friday, the 8th, was cloudy but fine—a canopy of cirro-stratus moving from S.W. in an upper current, while the surface wind remained northerly. Saturday was bright, with some passing showers in the afternoon. In Great Britain very severe weather was experienced during the week. At first some intense frosts occurred over a snow-covered country—thus, the thermometer in the screen sank on Sunday to 14° at Cambridge, on Monday to 15° at Shields, and on Tuesday to 10° at Aberdeen. Afterwards, on Thursday and Friday, the depression above mentioned caused drenching rains or heavy falls of sleet and snow in England. In Dublin the mean height of the barometer was 29·708 inches—pressure ranging from 30·015 inches at 9 p.m. of Tuesday (wind, W.S.W.) to 29·369 inches at 9 p.m. of Friday (wind, N.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 39·0°. The arithmetical mean of the highest and lowest daily temperature was 39·8°. Temperature in the screen rose to 50·4° on Wednesday (wind, S.W.), having fallen to 31·0° on Sunday (wind, S.E.). The rainfall amounted to ·103 inch, and was distributed over four days. The largest daily precipitation was ·047 inch on Monday.

Very favourable weather was experienced during the second week (10th to the 16th, inclusive), particularly in Ireland, where temperature was high and the air mild after Monday, the 11th. On this day an area of high atmospherical pressure showed itself over Ireland, and this system held for several days, producing dry weather and N.W. winds. On Wednesday an area of low pressure passed southeastwards across the S. of Scandinavia and Denmark, causing snow and frost in those countries and low temperatures with cold showers in Great Britain also. At the close of the week the barometer was giving way in Ireland, where the wind backed towards W. with rising temperature and increasing cloud. In Dublin the mean height of the barometer was 30·314 inches, pressure increasing from 29·765 inches at 9 a.m. of Sunday (wind, W.) to 30·546 inches at 9 p.m. of Friday (wind, S.S.E.). The mean temperature was 46·3°, or 6·5° above the value for the previous week. The highest reading of the screened thermometers was 57·7° on Wednesday (wind, N.W.); the lowest was 31·7° on Monday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 45·3°. Only a few light showers fell during the week, yielding ·020 inch of water. Of this quantity ·010 inch was measured on Monday and the same amount on Thursday. Except on Sunday and Wednesday, the percentage of cloud was high. Friday night was very cold in the S.E. of England, and severe frost prevailed in Germany and France on Saturday—at Munich the temperature at 8 a.m. was only 13°.

The chief feature in the weather-record of the third week was the passage across the British Islands off a very deep depression in the interval between Monday, the 18th, and Thursday, the 21st. At the beginning of the week the barometer was high and the weather was fine. During Sunday and Monday a great and uniform reduction of pressure took place, the wind backed to S.W. and S. with light showers and rising temperature. On Tuesday a well-marked depression, which hourly grew deeper, spread eastwards across Ireland and the Irish Sea to the North of England, where the barometer fell below 28·80 inches on Wednesday morning. By this time the wind had shifted to N. and N.E. in Ireland, and rose to a fresh or strong gale. The depression now changed its course, travelling southwards to France, where it "filled up" on Friday. A great deal of cold rain, wet snow, and hail fell in Great Britain in connection with this disturbance. During Friday and Saturday the wind once more backed to W.S.W., and freshened with a rainy appearance and higher temperature. In Dublin the mean height of the barometer was 29·746 inches—pressure decreasing from 30·264 inches at 9 a.m. of Sunday (wind, W.N.W.) to 28·944 inches at 9 p.m. of Tuesday (wind, W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 43·6°, while the mean of the daily highest and lowest readings was 43·8°. Temperature rose to 53·0° in the screen on Saturday (wind, W.S.W.), having fallen to 32·9° on Friday (wind, W.). Rain was measured on three days—the total precipitation amounting to ·671 inch, of which ·221 inch was caught on Monday, and ·381 inch on Tuesday. A little hail fell on Thursday morning.

Fresh N.W. winds, cloudy skies, and chiefly mild weather characterised the week ending Saturday, the 30th. The barometer was throughout high in the S. and S.W., but comparatively low in the far N. On Wednesday an anticyclone, in which the barometer rose above 30·40 inches, advanced over Ireland, where a brief frost occurred. Next day this system had travelled southeastwards to Brittany and the mouth of the English Channel, in which regions the barometer stood above 30·50 inches. Temperature rose fast in Ireland, as a squally westerly wind spread over the country, and rain fell in considerable quantities. The last two days were very mild, but changeable and rather cloudy. On Saturday evening the sky cleared and temperature gave way quickly. Venus shone brightly in the western sky on several evenings. In Dublin the mean height of the barometer was 30·236 inches, pressure increasing from 30·006 inches at 9 a.m. of Monday (wind, W.N.W.) to 30·441 inches at 9 a.m. of Wednesday (wind also W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 47·3°, while the arithmetical mean of the daily maxima and minima was 48·1°. The thermometer in the screen rose to 58·3° on Thursday (wind, W.S.W.), having fallen to 31·3° on Wednesday (wind, N.W.). Rain fell on five days to the amount of ·190 inch; the maximal fall in 24 hours was ·102 inch on Wednesday, or rather early on Thursday morning.

The last day of the month—Sunday, the 31st—was squally, cold, and showery. A sharp hail-shower fell at 2 p.m.

The rainfall in Dublin during the three months ending March 31st has amounted to 5·738 inches on 53 days, compared with 6·097 inches on 41 days during the same period in 1888, and a 23 years' average of 6·454 inches on 51·4 days. While double as much rain as fell in January and February of last year fell in the same months this year, the rainfall in March of this year is not one-third that of March, 1888—namely, 3·753 inches.

At Greystones, Co. Wicklow, the rainfall in March, 1889, was 1·71 inches, distributed over only 7 days. Of this quantity ·51 inches fell on the 18th. Since January 1st, 7·97 inches of rain have fallen on, however, only 29 days.

53·0	39·7	244	N., NE., NW.	3·28	11th	—	—	—	—							21 Days.	—	—
7	8	9	10	11	12	13	14	15	16	17	18	19						

18.

EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of April, 1889.

Mean Height of Barometer,	29·748 inches.
Maximal Height of Barometer (on 18th, at 9 a.m.),	30·153 „
Minimal Height of Barometer (on 4th, at 9 a.m.),	29·179 „
Mean Dry-bulb Temperature,	45·6°.
Mean Wet-bulb Temperature,	42·8°.
Mean Dew-point Temperature,	39·7°.
Mean Elastic Force (Tension) of Aqueous Vapour.	·244 inch.
Mean Humidity,	81·0 per cent.
Highest Temperature in Shade (on 20th),	59·7°.
Lowest Temperature in Shade (on 15th),	33·1°.
Lowest Temperature on Grass (Radiation) (on 15th),	26·0°
Mean Amount of Cloud,	72·5 per cent.
Rainfall (on 21 days),	2·607 inches.
Greatest Daily Rainfall (on 11th),	·420 inch.
General Directions of Wind,	N., N.E., N.W.

Remarks.

Like April, 1888, this was a generally cold, cloudy, changeable, showery month. It showed a low atmospherical pressure, and a preponderance of winds from polar points of the compass. In Dublin rain fell on as many as 21 days, and the total amount was more than 2½ inches. With the exception of 1879, 1887, and 1388, this was the coldest April experienced in Dublin since the present records were commenced in 1860.

In Dublin the mean temperature (46·1°) was decidedly below the average (47·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 45·6°. In the twenty-four years ending with 1888, April was coldest in 1879 (the cold year) (M. T. = 44·5°) and warmest in 1865 and 1874 (M. T. = 50·4°). In 1886, the M. T. was 46·3°, in 1887 it was as low as 45·1°, and in 1888 it was only 45·7°.

The mean height of the barometer was 29·748 inches, or 0·109 inch below the average value for April—namely, 29·857 inches. The mercury rose to 30·153 inches at 9 a.m. of the 18th, and fell to 29·179 inches at 9 a.m of the 4th. The observed range of atmospherical pressure was, therefore, only 0·974—that is, a little less than one inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 45·6°, or only 2·3° above the value for March, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 45·2°, or 1·8° below the average mean temperature for April, calculated in the same way, in the twenty years, 1865–84, inclusive (47·0°). The arithmetical mean of the maximal and minimal readings was 46·1°, compared with a twenty-three years' (1865–1887, inclusive) average of 47·8°. On the 20th, the thermometer in the screen rose to 59·7°—wind W.; on the 15th the temperature fell to 33·1°—wind N.W. The minimum on the grass was 26·0° on the same date. The rainfall was 2·607 inches, distributed over 21 days. The average rainfall for April in the twenty-three years, 1865–87, inclusive, was 2·034 inches, and the average number of rainy days was 14·8. The rainfall, therefore, was considerably above the average, while the rainy days much exceeded it. In 1877 the rainfall in April was very large—4·707 inches on 21 days; in 1882 also 3·526 inches fell on 20 days. On the other hand, in 1873, only ·198 of an inch was measured on 8 days, and in 1870 only ·838 of an inch fell, also on 8 days.

No solar halos were seen. The atmosphere was more or less foggy on the 10th, 12th, and 18th. High winds were noted on 9 days, but on only two occasions was the force of a gale attained—namely, on the 28th and 30th. Snow or sleet occurred on the 4th, and hail fell on the 21st, 22nd, 23rd, and 24th. The temperature exceeded 50° in the screen on 19 days, compared with 16 days in March, 8 days in February, and the same number of days in January. It did not fall to 32° in the screen on even one night. The minima on the grass were 32°, or less, on 8 nights, compared with 14 nights in March, 21 in February and 16 nights in January. The mean lowest temperature on the grass was 34·4°, compared with 34·6° in 1888 and 31·6° in 1887. A peal of thunder was heard to the southward about 5 p.m. of the 30th.

Unsettled weather prevailed during the greater part of the period ending Saturday, the 6th. Temperature showed a marked decrease, and squally N.W. winds and cold showers were general. At the beginning of the period a depression was travelling southeastwards across the south of Scandinavia. Strong N.W. winds and showers of cold rain, sleet and hail were reported from many stations on Monday, the 1st. In Scotland Tuesday was a very inclement day. The barometer now gave way quickly, and a deep depression advanced from the N.W. over Ireland and England. It caused heavy rains in the N. of Ireland, and all over the country the weather became broken, gloomy, cold, and showery, continuing so until the end of the week. In Dublin the mean height of the barometer was 29·721 inches—pressure ranging from 30·097 inches at 9 a.m. of Tuesday (wind N.N.W.) to 29·179 inches at 9 a.m. of Thursday (wind also N.N.W.) The mean dry bulb temperature at 9 a.m. and 9 p.m. was 45·4°. The arithmetical mean of the daily maxima and minima was almost the same—namely, 45·5°. The screened thermometers rose to 54·5° on Monday (wind, N.W.), and fell to 38·3° on Thursday (wind, N.N.W.). Rain was measured on three days, the total amount being 76 inch, of which ·140 inch was registered on Thursday. Some sleet fell on this day. There were thunderstorms over the south of England on Friday, the 5th.

"Many years have passed since so dull and wet and cold a period as that ended Saturday, the 13th, was experienced in April. A continuously low barometer for many days, chilly polar winds, densely overcast skies, frequent and abundant rainfalls, and an uniformly low temperature were the characteristics of this week. As usually happens when N.E. winds are prevalent, the weather was much worse on the east coast of Ireland than in the centre and western parts of this country. At 8 a.m. of Sunday, the 7th, the centre of a well-defined atmospherical depression was found off Ushant, so that easterly and north-easterly winds prevailed in the United Kiugdom. In Dublin this day was very wet and cold. A short spell of sunshine on Monday morning was followed by a dull damp day. Tuesday was raw, gloomy, and damp; Wednesday showed a slight improvement; but Thursday was again cold and wet. On Friday the weather improved; and Saturday was dry, but cold. In Dublin the mean height of the barometer was only 29·589 inches—pressure ranging f om 29·333 inches at 9 p.m. of Monday (wind, N.W.), to 29·921 inches at 9 p.m. of Saturday (wind, N.E.). The mean temperature, deduced from readings of the dry bulb thermometers taken daily at 9 a.m. and 9 p.m., was 42·7°. The arithmetical mean of the highest and lowest daily temperatures was 43·4°. The shade temperature was highest (50·6°) on Friday (wind, N.E.), and lowest (39·2°) on Monday (wind, E.). Rain fell on six days to the amount of 1·096 inches—the maximal fall in 24 hours being ·420 inch on Thursday. The atmosphere was foggy on Wednesday and Friday.

Favourable, dry weather prevailed during the third week (14th–20th inclusive). At first the air was dry and searching by day, frosty by night; but on Wednesday, the 17th, it became milder, and so continued to the end. From Sunday until Thursday an area of comparatively high atmospherical pressure was found over the Atlantic to the westward of Ireland, where the winds were, accordingly, northerly (N.E. to N.W.), and the weather was fine and dry. In Dublin sharp ground frosts occurred on each of the first three nights—the grass minima being 29·0°, 26·0°, and 28·3, respectively. On Thursday the anticyclone (area of high pressure) moved southwards, and a warm southwesterly air current spread over Ireland and Scotland, causing higher temperatures and increasing cloud. On Friday night rain fell heavily in the N.W. of Ireland, but only a shower or two passed over Dublin. In this city the mean height of the barometer was 30·044 inches, pressure ranging between 30·153 inches at 9 a.m. of Thursday (wind, S.S.W.) and 29·731 inches at 9 p.m. of Saturday (wind, W.S.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 47·9°, or 5·2° above the corresponding value for the previous week. The thermometer rose nearly to 60° in the shade (screen) on Wednesday, Thursday, and Saturday—the actual values being 59·6°, 59·5°, and 59·7° respectively. On Monday the minimum in the shade was 33·1°, while that on the grass was as low as 26·0°. Rain fell on the night of Good-Friday, the 19th, to the amount of only ·010 inch, and on Saturday night to the amount of ·120 inch—total rainfall for the week = ·130 inch„ on two days.

Conditions were cyclonic over Northwestern Europe throughout the fourth week (21st—27th inclusive), and consequently the weather was unsettled, squally, and showery, with some finer intervals. Temperature ruled decidedly low for the time of year, and in Dublin hail fell on Sunday and the three following days. On Easter Day, April 21, the centre of an extensive atmospherical depression lay off the extreme N.W. of Scotland—the barometer at 8 a.m. ranged from 30·22 inches in the S.E. of France to 29·17 inches at Stornoway (Hebrides). Showers of rain and hail and squalls prevailed. On Tuesday another depression travelled southeastwards down the North Channel and across the Irish Sea to the centre and east of England. Heavy showers fell in all districts, and thunder and lightning with hail occurred at many places in England. On Friday a new V.-shaped depression caused a heavy rainfall in Dublin. Towards the close of the week a tendency for southerly to take the place of northerly winds was perceptible. In Dublin the mean height of the barometer was 29·751 inches—pressure ranging from 29.384 inches at 7 p.m. of Tuesday (wind, W.), to 30·016 inches at 9 p.m. of Thursday (wind, S.E.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 46·0°. The mean temperature derived from the highest and lowest daily readings was 46·5°. The screened thermometers rose to 54·7° on Tuesday (wind, W.), and fell to 39·1° on Monday (wind, N.N.W.). Rain fell on seven days to the total amount of ·832 inch. The maximal rainfall in 24 hours was ·376 inch on Friday (wind, S. to W.N.W.).

On Sunday, the 28th, a S.E. gale blew for some hours in Dublin, while great cold prevailed inland, and sleet and snow fell. Heavy showers fell on the 29th, and on the 30th there was another short-lived southeasterly to easterly gale. At 5 p.m. distant thunder was heard near Dublin, and great gloom occurred for a time.

The rainfall in Dublin during the four months ending April 30th has amounted to 8·345 inches on 74 days, compared with 8·090 inches on 58 days during the same period in 1888, 5·607 inches on 52 days during the same period in 1887, and a 23 years' average of 8·488 inches, on 66·2 days.

At Greystones, Co. Wicklow, the rainfall in April, 1889, was 2·01 inches, distributed over only 12 days. Of this quantity ·48 inch fell on the 11th, and ·41 inch on the 5th. Since January 1st, 10·60 inches of rain have fallen at Greystones, on, however, only 51 days.

EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of May, 1889.

Mean Height of Barometer,	29·787 inches
Maximal Height of Barometer (on 20th, at 9 p.m.),	30·113 „
Minimal Height of Barometer (on 28th, at 3 p.m.),	29·440 „
Mean Dry-bulb Temperature,	54·1°.
Mean Wet-bulb Temperature,	51·2°.
Mean Dew-point Temperature,	48·3°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·340 inch.
Mean Humidity,	81·7 per cent.
Highest Temperature in Shade (on 21st),	72·5°.
Lowest Temperature in Shade (on 11th),	40·8°.
Lowest Temperature on Grass (Radiation) (on 11th),	31·9°
Mean Amount of Cloud,	65·4 per cent.
Rainfall (on 17 days),	2·131 inches.
Greatest Daily Rainfall (on 5th),	·509 inch
General Directions of Wind,	S., S.E., E.

Remarks.

This was a very favourable month—singularly free from parching easterly winds, with a high mean temperature, and genial rainfall. The atmosphere was generally in a quiet state, no deep depressions and no [illegible] in Dublin calms were of frequent occurrence and in consequence morning fogs formed over the city.

In Dublin the mean temperature (54·6°) was much above the average (51·9°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 54·1°. In the twenty-four years ending with 1888, May was coldest in 1869 (M. T. = 48·2°) in 1885 (M. T. = 48·7°). and in 1879 (the cold year) M. T. = 48·8°). It was warmest in 1868 (the warm year) (M. T. = 55·8°) and 1875 (M. T. = 54·9°). In 1886, the M. T. was 50·5°, in 1887 it was 51·8°, and in 1888 it was 52·5°.

The mean height of the barometer was 29·787 inches or 0·209 inch below the average value for May—namely, 29·996 inches. The mercury rose to 30·113 inches at 9 p.m. of the 20th, and fell to 29·440 inches at 3 p.m. of the 28th. The observed range of atmospherical pressure was, therefore, only 0·673 of an inch—that is, a little less than seven-tenths of an inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 54·1°, or 8·5° above the value for April, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 53·4°, or 2·5° above the average mean temperature for May, calculated in the same way, in the twenty years, 1865–84, inclusive (50·9°). The arithmetical mean of the maximal and minimal readings was 54·6°, compared with a twenty-three years' average of 51·9°. On the 21st, the thermometer in the screen rose to 72·5°—wind E.; on the 11th the temperature fell to 40·8°—wind calm. The minimum on the grass was 31·9° on this same date. The rainfall amounted to 2·131 inches, distributed over 17 days. The average rainfall for May in the twenty-three years, 1865–87, inclusive, was 2·072 inches, and the average number of rainy days was 15·5. The rainfall and the rainy days, therefore, were somewhat above the average. In 1886 the rainfall in May was very large—5·472 inches on 21 days; in 1869 also 5·414 inches fell on 19 days. On the other hand, in 1871, only ·378 of an inch was measured on 9 days; in 1876 only ·798 of an inch fell on 6 days; in 1887 only ·882 of an inch fell on 10 days; and in 1888 only ·978 of an inch on 11 days.

There were solar haloes on the 16th and 20th. The atmosphere was foggy on the 5th, 6th, 11th, 13th, 14th, 18th, 19th, 21st, and early morning of the 27th. High winds were noted on only 5 days, attaining the force of a gale on not one occasion. Hail occurred on the 31st. The only heavy falls of rain were on the 5th (·509 inch), and on the 12th (·453 inch). There were no electrical disturbances in Dublin.

The first four days were changeable, with a damp atmosphere and cloudy sky on Friday and Saturday, the 3rd and 4th.

During the week ended Saturday, the 11th, the weather was again changeable, with some heavy rainfalls in Ireland, but temperature showed a decided advance. Sunday and Thursday were very wet days in Dublin, while Monday, Tuesday, and Saturday were equally fine. Rain fell for many hours on Sunday, and in the evening a severe thunderstorm occurred in Ulster. A dense vapour fog next morning gave place to brilliant sunshine. Then came two tolerably fine, but not settled, days—to be followed by a very wet day (Thursday). Friday was at first squally with a fine drizzle, but the afternoon proved fair, and the following night was cold. Saturday was a very fine day, with lofty cirrus from S.E. In Dublin the mean height of the barometer was 29·763 inches—pressure receding to 29·548 inches at 9 p.m. of Thursday (wind E.S.E.), and increasing to 29·912 inches at 9 p.m. of Saturday (wind, light from E.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 52·3°. The mean of the daily maxima and minima in the screen was 53·2°. On Tuesday the shade thermometer rose to 62·6° (wind, W.S.W.). This was the first occasion this season upon which temperature in Dublin exceeded 60° in the shade. On Saturday the minimum in the shade was 40·8° and on the grass it was 31·9° (wind, calm). Rain was measured on four days, the total amount being 1·031 inches, of which ·509 inch was registered on Sunday (wind, S. to N.W.). Very high temperatures, (70°—77°), were recorded in central and eastern England during this week. On Friday an area of low pressure approached England from Germany, causing a heavy rainfall.

Cloudy, dull, quiet weather prevailed during the period from the 12th to the 18th inclusive. At the beginning of the week a cyclone, in which the gradients, however, were not steep, was found with its centre over Norfolk, whence it had travelled slowly from Germany. Much rain fell in eastern and central England in connection with this system, and even in Dublin ·453 inch of rain was measured on Monday morning. This depression gradually filled up and dispersed, when atmospherical pressure became so uniform over Western Europe that on Tuesday morning the barometer readings over the whole of our islands, the North Sea, the Netherlands, Denmark, the South of Scandinavia, France and Germany were all within one-tenth of an inch of each other. Consequently, very light, variable winds, and quiet weather prevailed. On the afternoon of this day a severe thunderstorm occurred in the north-east of Ireland and south-west of Scotland. A solar halo appeared in Dublin on Thursday afternoon and Friday proved a damp, dropping day. Saturday was at first cloudy, but afterwards bright and warm. In Dublin the mean height of the barometer was 29·919 inches, pressure ranging only from 29·780 inches at 9 p.m. of Tuesday (wind, calm), to 29·997 inches at 9 a.m. of Friday (wind, E.S.E., light). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 53·1°, while the mean daily highest and lowest readings of the screened thermometers were 52·9°. The highest shade temperature was 62·6° on Saturday (wind, variable); the lowest was 41·9° on Tuesday (wind, E.N.E.). Rain fell on three days to the amount of ·504 inch—the heaviest rainfall in 24 hours being ·453 inch on Sunday (wind, W.S.W. to N.W.)

Favourable weather held throughout the week ending Saturday, the 25th, in Dublin, where only light showers fell on Friday. Until that day temperature ruled unusually high for the time of year—the daily maxima in the screen being 66·3°, 69·6°, 72·5°, 68·6°, and 67·5° respectively. On Wednesday a gradual fall of the barometer set in and continued until Friday morning, when pressure fell to 29·5 inches in the Hebrides and 29·6 inches at Roche's Point, Co. Cork. On Thursday severe thunderstorms were reported from the east of England, and at night heavy rain set in over the north and north-west of Ireland. On this day temperature rose to 82° in London and 81° at Loughborough and Cambridge. Early on Friday a rapid fall of temperature occurred in Ireland, so that in Dublin the thermometer did not exceed 59·0° on this day, while it fell to 42·1° in the screen and to 35·9° on the grass during the ensuing night. The mean height of the barometer was 29·882 inches—pressure rising to 30·113 inches at 9 p.m. of Monday (wind, E.), and falling to 29·584 inches at 7 a.m. of Friday (wind, S.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 58·3, while the mean of the highest and lowest daily readings was 58·5°. The screened thermometers rose to 72·5° on Tuesday (wind E.N.E.) and fell to 42·1° on Saturday (wind, N.N.W.). Rain fell on Friday to the amount of only ·010 inch.

Throughout the closing period (Sunday, 26th, to Friday, 31st) much less settled weather prevailed. At first the barometer was lowest over the Continent, and large quantities of rain fell in England, while the weather was comparatively fine in Ireland. From Tuesday, the 28th, however, the lowest pressures were found off the northwest and west of Ireland, so that fresh to strong southerly (S.E. to S.W.) winds and frequent showers were experienced. Thunder and lightning accompanied the showers in several places, but—as often happens—Dublin escaped the electrical disturbances. During this period, the barometer ranged between 29·832 inches at 9 a.m. of Monday (wind, E.), and 29·440 inches at 3 p.m. of Tuesday (wind, S.) On Monday, the 27th, the thermometer rose to 64·6° in the shade (wind, E.S.E.), the minimum during the previous night having been 44·1°.

During the month the thermometer in the screen did not fall below 40·8° (on the 11th), and on only one night temperature of 32° or less recorded on the grass. The mean minimal temperature on the grass was 42·4°, compared with 37·5° in May, 1888, and 37·9° in May, 1887.

The rainfall in Dublin during the five months ending May 31st has amounted to 9·476 inch on 91 days, compared with 9·068 inches on 69 days during the same period in 1888, 6·489 inches on 62 days in 1887, and a 23 years' average of 10·560 inches, on 81·7 days.

At Greystones, Co. Wicklow, the rainfall in May, 1889, was 3·13 inches, distributed over only 10 days. Of this quantity ·61 inch fell on the 3rd, and ·47 inch on the 4th, and ·39 inch on the 28th. Since January 1st, 13·11 inches of rain have fallen at Greystones, on, however, only 51 days.

Meteorology.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of June, 1889.

Mean Height of Barometer,	30·077 inches.
Maximal Height of Barometer (on 5th, at 9 a.m.),	30·482 „
Minimal Height of Barometer (on 2nd, at 9 a.m.),	29·661 „
Mean Dry-bulb Temperature,	60·0°.
Mean Wet-bulb Temperature,	55·2°.
Mean Dew-point Temperature,	51·1°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·377 inch.
Mean Humidity,	73·3 per cent.
Highest Temperature in Shade (on 22nd),	74·8°.
Lowest Temperature in Shade (on 11th),	41·2°.
Lowest Temperature on Grass (Radiation) (on 11th),	36·3°
Mean Amount of Cloud,	42·4 per cent.
Rainfall (on 6 days),	·100 inch.
Greatest Daily Rainfall (on 8th),	·032 inch.
General Directions of Wind,	E., and N.E.

Remarks.

This month shows a marked resemblance to June, 1887, which will be long remembered as one of the driest and warmest months on record in Dublin. The mean temperature fell indeed 2·8° short of that of June, 1887, but it was still 1·7° above the average; the mean height of the barometer was ·136 inch lower, but it was ·153 inch above the average for the month; and there was even a greater deficiency of rainfall than had occurred in June, 1887. Lastly, there was again a preponderance of easterly and north-easterly winds, with the same uneventful fine summer weather which was so characteristic of the Queen's Jubilee summer.

In Dublin the mean temperature (59·5°) was decidely above the average (57·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 60·0°. In the twenty-four years ending with 1888, June was coldest in 1882 (M. T. = 55·8°) and in 1879 (the "cold year") (M. T. = 55·9°). It was warmest in 1887 (M. T. =62·3°), in 1865 (M. T. = 61·0°), and in 1868 (the "warm year") M. T. = 60·5°). In 1886, the M. T. was 57·5°, and in 1888 it was 56·2°.

The mean height of the barometer was 30·077 inches or 0·153 inch above the average value for June—namely, 29·924 inches. The mercury marked 30·482 inches at 9 a.m. of the 5th, and fell to 29·661 inches at 9 a.m. of the 2nd. The observed range of atmospherical pressure was, therefore, 0·821 of an inch—that is, a little more than eight-tenths of an inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 60·0°, or 5·9° above the value for May, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) =*Mean Temp.*—from the means of the daily maxima and minima was 58·2°, or 1·6° above the average mean temperature for June, calculated in the same way, in the twenty years, 1865–84, inclusive (56·6°). The arithmetical mean of the maximal and minimal readings was 59·5°, compared with a twenty-three years' average of 57·8°. On the 22nd, the thermometer in the screen rose to 74·8°—wind E.N.E.; on the 11th the temperature fell to 41·2°—wind N.E. The minimum on the grass was 36·3° on the latter date. The rainfall amounted to only one-tenth of an inch (·100 inch), distributed over 6 days. There was no measurable rainfall in Dublin after the 14th, and not since September, 1865—when only ·056 inch was registered on three days—has so comparatively rainless a month occurred at this station. The average rainfall for June in the twenty-three years, 1865–87, inclusive, was 1·839 inches, and the average number of rainy days was 14·0. The rainfall and the rainy days, therefore, were remarkably below the average. In 1878 the rainfall in June was very large—5·058 inches on 19 days; in 1879 also 4·046 inches fell on 24 days. On the other hand, in 1874, only ·405 of an inch was measured on 9 days; and in 1868 only ·677 of an inch fell on but 6 days. In 1887, the rainfall was only ·252 of an inch, distributed over only 5 days; in 1888 it was as much as 3·045 inches, distributed over as many as 18 days.

High winds were noted on 5 days, but did not attain the force of a gale on any occasion. Temperature reached or exceeded 70° in the screen on 10 days, as compared with 17 days in 1887, and only one day in 1888. Luminous cirri were seen from Dublin on the northern horizon on the night of the 7th. There were no electrical disturbances in or near Dublin.

The first day of the month was cloudy, squally, and showery.

So far as Dublin is concerned, beautiful weather was experienced in the week ending Saturday, the 8th. Only on the afternoon of Monday and Saturday were conditions unsettled and slight rain fell. The amount of cloud at other times was small and much brilliant sunshine was enjoyed. At the beginning of the week an extensive depression, which had caused a fresh gale and very heavy rain in the S. and W. of Ireland on Saturday the 1st inst., was passing away over the Atlantic. Temperature rose on Sunday the 2nd, to 82° in London, 83° at Cambridge, and 84° at Loughborough, and in the afternoon violent thunderstorms, with hail, occurred in many parts of Great Britain. An area of high pressure now advanced northwards over the British Islands from France and beautiful weather set in, lasting until Thursday. Towards night on this day a small depression developed over the eastern part of the English Channel and severe thunderstorms again became prevalent in England. On Saturday another depression appeared in the N.W., causing some rain in Dublin. The approach of this system was heralded on Friday night by the appearance of luminous clouds on the northern horizon. In Dublin the mean pressure was 30·078 inches—highest, 30·482 inches at 9 a.m. of Wednesday (wind, E.); lowest, 29·661 inches at 9 a.m. of Sunday (wind, S.E.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 59·0°. The mean of the maxima and minima combined was 58·4°. The shade thermometers rose to 71·3° on Thursday (wind, E.), and fell to 44·1° on Saturday (wind, W.N.W.). Rain fell on two days to the amount of ·044 inch, of which ·032 inch was registered on Saturday.

During the second week (9th–15th, inclusive), strange contrasts of weather were experienced in different parts of the United Kingdom. Thus, while clear skies and brilliant sunshine reigned supreme in Ireland during the first three days, over the greater part of England there were gloomy skies, low temperature, strong N.E. winds, and heavy rains. Whitsun Monday, the 10th, which was a cloudless day in Dublin, was cold and wet as a day in midwinter in London. This singular contrast was brought about by the presence of a trough of low barometrical pressure over the north of France, Holland, and Denmark, while the barometer was high and rising in Ireland and Scotland. After Tuesday this distribution of pressure gave place to irregular and slight gradients for S.W. and W. to N.W. winds, so that the weather became less settled in Ireland, but improved in England. In Dublin the mean height of the barometer during the week was 29·933 inches, pressure ranging between 29·833 inches at 9 p.m. of Thursday (wind, S.S.W.) and 30·090 inches at 9 p.m. of Saturday (wind light from N.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·8°, while the mean of the daily maxima and minima was 57·7°. Temperature in the screen rose to 68·5° on Thursday (wind southerly), having fallen as low as 41·2° on Tuesday morning (wind, N.E.). The rainfall was only ·046 inch, distributed over three days. Since June 1 only ·100 inch of rain had fallen in Dublin, on six days. Up to Saturday, the 15th, 1·960 inches had been measured in London, on however only five days.

Quiet, summerlike weather prevailed in Ireland throughout the third week (16th–22nd, inclusive). Less settled conditions, with fresh N.E. winds, and at times a good deal of cloud, were reported from Great Britain. All through, an anticyclone of medium intensity held over the British Islands, while areas of relatively low pressure appeared from time to time over the Baltic and Germany and France. The first three and the last two days were almost cloudless in Dublin, although the atmosphere was hazy. During the earlier part of Wednesday and Thursday the sky was overcast, but in the afternoons of both these days the cloud canopy broke up. There were some heavy thunderstorms in France each day after Monday. In Dublin the mean height of the barometer was 30·180 inches, pressure ranging only from 30·260 inches at 9 a.m. of Tuesday (wind, E.), to 30·118 inches at 9 p.m. of Thursday (wind, calm). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 61·2°, while the mean daily maxima and minima combined were 60·3°. The screened thermometers rose to 74·8° on Saturday, having fallen to 49·9° on Sunday. There was no rain during the week. The wind varied between E. and N., except sometimes at night when a light westerly land breeze was felt in Dublin. On Wednesday and Thursday the easterly wind freshened considerably.

The period from the 23rd to the 29th inclusive was another week of quiet, summerlike weather. After Tuesday, the easterly breezes, which had been so prevalent, gave place to light and variable, or moderate, westerly winds. Barometrical gradients were slight and irregular throughout. On Tuesday and the two following days thunderstorms occurred in different parts of France. In the British Islands only a few showers fell during the week. After Tuesday daily maxima of 80° or upwards were recorded at several English stations. In Ireland the thermometer rose (at Parsonstown) to 77° on Sunday. In Dublin the mean height of the barometer was 30·128 inches, pressure ranging from 30·044 inches, at 9 a.m. of Monday (wind, E.), to 30·273 inches at 9 a.m. of Saturday (wind, N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 62·2°. The mean temperature deduced from the daily highest and lowest readings was 62·0°. The shade maxima exceeded 70° on four days—the absolute maximum being 72·5° on Wednesday (wind, W.N.W.). The minimum for the week was 52·1° on Tuesday (wind, calm). A few large "spots" of rain were observed about 5 p.m. of Wednesday, and at 8 p.m. of Saturday a light shower fell, yielding only three-thousandths of an inch of water—less than the standard minimal rainfall for measurement.

Sunday, the 30th, was at first cloudy and then fair. In the afternoon the air was very dry, and a peculiar yellowish-grey haze overspread the sky.

The rainfall in Dublin during the six months ending June 30 has amounted to 10·576 inches on 97 days, compared with 12·113 inches on 87 days during the same period in 1888, 6·741 inches on 67 days in 1887, and a 23 years' average of 12·399 inches, on 95·7 days.

At Greystones, Co. Wicklow, the rainfall in June, 1889, was ·15 inch, distributed over only 2 days. Of this quantity ·13 inch fell on the 3rd. Since January 1st, 13·26 inches of rain have fallen at Greystones, on, however, only 53 days.

EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of July, 1889.

Mean Height of Barometer, - - -	29·944 inches.
Maximal Height of Barometer (on 1st, at 9 a.m.),	30·520 „
Minimal Height of Barometer (on 21st, at 9 a.m.),	29·498 „
Mean Dry-bulb Temperature, - - -	58·3°.
Mean Wet-bulb Temperature, - - -	55·0°.
Mean Dew-point Temperature, - - -	51·9°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·389 inch.
Mean Humidity, - - - - -	80·0 per cent.
Highest Temperature in Shade (on 6th), - -	77·8°.
Lowest Temperature in Shade (on 8th), - -	44·0°.
Lowest Temperature on Grass (Radiation) (on 8th),	38·6°
Mean Amount of Cloud, - - - -	56·3 per cent.
Rainfall (on 15 days), - - - -	2·570 inches.
Greatest Daily Rainfall (on 22nd), - - -	·624 inch.
General Directions of Wind, - - -	N.W., W.

Remarks.

Warm and fine at the beginning and close, this month on the whole proved changeable, showery, and cool, with a great preponderance of North-westerly winds—a very common state of things in an Irish July. Speaking generally, however, the weather was favourable from both a sanitary and an agricultural point of view.

In Dublin the mean temperature (58·7°) was decidedly below the average (60·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 58·3°. In the twenty-four years ending with 1888, July was coldest in 1879 (the "cold year") (M. T. = 57·2°). It was warmest in 1887 (M. T. = 63·7°), and in 1868 (the "warm year") (M. T. = 63·5°). In 1886, the M. T. was 61·0°; in 1888, it was as low as 57·3°. From this, 1887 proves to have been the warmest since the present records commenced, whilst July, 1888, was almost the coldest.

The mean height of the barometer was 29·944 inches or 0·022 inch above the average value for July—namely, 29·922 inches. The mercury marked 30·520 inches at 9 a.m. of the 1st, and fell to 29·498 inches at 9 a.m. of the 21st. The observed range of atmospherical pressure was, therefore, 1·022 inch — that is, a little more than an inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 58·3°, or 1·7° below the value for June, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 57·4°, or 2·2° below the average mean temperature for July, calculated in the same way, in the twenty years, 1865–84, inclusive (59·6°). The arithmetical mean of the maximal and minimal readings was 58·7°, compared with a twenty-three years' average of 60·8°. On the 6th, the thermometer in the screen rose to 77·8°—wind W.N.W.; on the 8th the temperature fell to 44·0°—wind N.N.E. The minimum on the grass was 38·6° on the latter date. The rainfall was 2·570 inches, distributed over 15 days.. The average rainfall for July in the twenty-three years, 1865–87, inclusive, was 2·350 inches, and the average number of rainy days was 17·1. The rainfall therefore, was somewhat above the average, while the rainy days were below it. In 1880 the rainfall in July was very large—6·087 inches on 24 days; in 1871 also 4·391 inches fell on 28 days. On the other hand, in 1870, only ·539 of an inch was measured on 8 days; in 1869 the fall was only ·739 of an inch on 9 days, and in 1868, only ·741 of an inch fell on but 5 days.

High winds were noted on 8 days, but attained the force of even a moderate gale on only two occasions—viz., the 21st and 27th. Temperature reached or exceeded 70° in the screen on only three days. In July, 1887, temperature reached or exceeded 70° in the screen on no fewer than 17 days. In July, 1888, the maximum was 68·7°. There was a storm of thunder, lightning, and heavy rain and hail on the 16th. Fog was observed on the 9th and 30th.

The drought observed in June continued through the first week, but until Saturday, the 6th—which was a really hot day—temperature ruled lower than in the previous week. The prevailing distribution of atmospherical pressure was anti-cyclonic over the British Islands, with areas of relatively low barometer over both the Baltic and the Mediterranean. At the beginning and close of the week the wind was northwesterly, but in the interval light to moderate easterly breezes (E. to N.E.) prevailed. Up to and including Wednesday the mornings were cloudy—indeed on Tuesday, the 2nd, slight drizzle was observed at 7 30 a.m. Electric cirri showed on Thursday afternoon, and the atmosphere was generally hazy through the week. On Saturday a remarkable rise of temperature occurred—the maximum, 77·8°, being also the maximum of the present season so far as it has gone. In Dublin the mean height of the barometer was 30·296 inches, pressure ranging from 30·520 inches at 9 a.m. of Monday, the 1st (wind, N.W.) to 29·926 inches at 9 p.m. of Saturday, the 6th (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 61·9°. The mean of the daily highest and lowest shade readings of the thermometer was 61·7°. The screened thermometers rose to 77·8° on Saturday, having fallen to 50·1° on Thursday.

Although less settled than before, the weather was most favourable in all respects throughout the second week (7th–13th inclusive). Early on the morning of Sunday, the 7th, sharp showers fell, yielding a rainfall of ·019 inch—the first recorded since June 14. Rain fell on Tuesday and Wednesday abundantly over the greater part of the United Kingdom, the west and centre of Ireland only escaping the copious showers. On Sunday rather a deep barometrical depression lay over the S. of Norway, and fresh N W. winds with cool changeable weather prevailed in the British Isles. On Monday morning a new depression appeared off the Land's End, whence it travelled slowly to the S. of Ireland, causing the copious rains already mentioned. On Wednesday this system began to move rapidly in a northeasterly direction, and in 24 hours its centre reached the Christiania Fjord, in Norway. Fine, clear weather now set in, so that Snowdon was seen from the Wicklow Coast on Thursday afternoon. On Friday and Saturday very shallow disturbances led to local showers or rains in parts of England and Ireland. In Dublin the mean height of the barometer was 29·847 inches, pressure ranging from 29·586 inches, at 9 a.m. of Wednesday (wind, W.N.W.), to 30·031 inches at 9 p.m. of Friday (wind, E.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·7°. The mean of the daily highest and lowest temperatures in the screen was 58·1°. The shade thermometers rose to 69·5° on Thursday (wind, W.S.W.), having fallen to 44·0° on Monday (wind, N.N.E.). Rain fell on four days to the amount of ·757 inch. The heaviest fall in 24 hours was ·455 inch on Tuesday.

During the week ended Saturday, the 20th, changeable, cloudy, and cool weather was general over the Northwest of Europe. The distribution of atmospherical pressure was cyclonic—systems of low pressure, with secondary shallow depressions, causing heavy showers in most places from time to time. On Sunday, the 14th, the atmosphere was very clear, so that the Mourne and Welsh Mountains were plainly seen from the Co. Wicklow. On Monday and Tuesday heavy showers of rain and hail, with occasional thunder and lightning, prevailed in and about Dublin. Three fine, but cloudy, cool days followed, but on Friday night a depression of considerable intensity brought a fresh rainfall. Saturday was close and showery at first, but in the afternoon the weather improved. In Dublin the mean height of the barometer was 29·861 inches, pressure ranging between 30·020 inches at 9 a.m. of Thursday (wind, N.W.), and 29·533 inches at 1 p.m. of Saturday (wind, W.N.W.) The mean dry bulb temperature at 9 a.m. and 9 p.m. was 56·2°. The arithmetical mean of the daily highest and lowest shade temperatures was 56·2°. On Wednesday the thermometer rose to 64·6°, having fallen during the preceding night to 46·0°. Rain fell on four days—the total measurement being ·723 inch. The largest rainfall in 24 hours was ·279 inch on Tuesday. Nearly as much (·260 inch) was credited to Friday. Hail, thunder, and lightning were observed on Tuesday.

In the fourth week (21st–27th inclusive), the weather was again very unsettled, but on Thursday the rain ceased, and bright sunshine, with high, bracing, northerly winds took their place. Atmospherical pressure was very unstable—a series of depressions passing eastwards along irregular paths until Saturday, when a system of high barometer became established over the West of Ireland. Very heavy showers fell in and about Dublin on the first three days of the week—the resulting measurement of rain being nearly an inch, including ·624 inch registered on Monday. Wednesday broke dull and wet, but in the afternoon conditions improved. During the last three days of this week very strong northerly (N.W. to N.) winds prevailed, accompanied at first with cloudy, but afterwards with clear, bracing weather. In Dublin the mean height of the barometer was 29·772 inches, pressure having fallen to 29·498 inches at 9 a.m. of Sunday (wind, W.S.W.) and risen to 30·097 inches at 9 p.m. of Saturday (wind, N.W.) The mean dry bulb temperature at 9 a.m. and 9 p.m. was 55·9°. The mean of the daily maxima and minima was 57·7°—the highest shade temperature was 68·6° on Saturday; the lowest was 48·9° on Thursday Rain fell on five days to the amount of 1·048 inches. The heaviest downpour in 24 hours was ·624 inch on Monday.

During the last four days, quiet summer-like weather prevailed. On the 29th and 30th there was much fog in the Irish Sea, and on the 31st a considerable increase of temperature took place.

The rainfall in Dublin during the seven months ending July 31st has amounted to 13·116 inches, on 112 days, compared with 7·935 inches on 80 days during the same period in 1887, 15·994 inches on 109 days in 1888, and a twenty-three years' average of 14·749 inches, on 112·8 days.

At Greystones, Co. Wicklow, the rainfall in July, 1889, was 2·42 inches, distributed over 13 days. Of this quantity ·60 inch fell on the 9th, ·32 inch on the 19th, and ·29 inch on the 20th. Since January 1, 15·68 inches of rain have fallen at Greystones, on, however, only 66 days.

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MET ROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of August, 1889.

Mean Height of Barometer,	29·851 inches.
Maximal Height of Barometer (on 31st, at 9 a.m.),	30·262 „
Minimal Height of Barometer (on 21st, at 3 p.m.),	29·145 „
Mean Dry-bulb Temperature,	57·6°.
Mean Wet-bulb Temperature,	54·9°.
Mean Dew-point Temperature,	52·5°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·395 inch.
Mean Humidity,	83·6 per cent.
Highest Temperature in Shade (on 1st),	71·8°.
Lowest Temperature in Shade (on 25th),	46·4°.
Lowest Temperature on Grass (Radiation) (on 25th),	40·1°
Mean Amount of Cloud,	60·2 per cent.
Rainfall (on 22 days),	5·747 inches.
Greatest Daily Rainfall (on 19th),	1·942 inches.
General Directions of Wind,	N.W., W., W.S.W.

Remarks.

August, 1889, proved a wet, cold, and stormy month. Rain fell on as many as 22 days—the fall amounting to 1·300 inches on the 10th, and to 1·942 inches on the 19th. The mean temperature was 1·2° below the average, and strong or squally winds between S.W. and N.W. prevailed on no fewer than 14 days. As regards temperature conditions were almost identical with those observed in August, 1888.

In Dublin the mean temperature (58·6°) was decidedly below the average (59·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 57·6°. In the twenty-four years ending with 1888, August was coldest in 1881 (M. T. = 57·0°), and warmest in 1871 (M. T. = 62·0°). In 1885, the M. T. was only 57·1°; in 1879 (the "cold year"), it was 57·7°; in 1887, it was 60·3°; and in 1888, it was 58·2°.

The mean height of the barometer was 29·851 inches, or 0·053 inch below the average value for August—namely, 29·904 inches. The mercury marked 30·262 inches at 9 a.m. of the 31st, and fell to 29·145 inches at 3 p.m. of the 21st. The observed range of atmospherical pressure was, therefore, 1·117 inches—that is, a little more than an inch and one tenth. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 57·6°, or exactly the same as in August, 1888, and 0·7° below the value for July, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 57·5°, or 1·4° below the average mean temperature for August, calculated in the same way, in the twenty years, 1865–84, inclusive (58·9°). The arithmetical mean of the maximal and minimal readings was 58·6°, compared with a twenty-three years' average of 59·8°. On the 1st the thermometer in the screen rose to 71·8° — wind, S.W.; on the 25th the temperature fell to 46·4°—wind, N.N.W. The minimum on the grass was 40·1° on the latter date. The rainfall was 5·747 inches, distributed over 22 days. The average rainfall for August in the twenty-three years, 1865–87, inclusive, was 2·766 inches, and the average number of rainy days was 15·3. The rainfall, therefore, was more than twice the average, and the rainy days were also considerably in excess of the average. In 1874 the rainfall in August was very large—4·946 inches on 18 days—and in 1868 also 4·745 inches fell on, however, only 13 days. On the other hand, in 1884, only ·777 inch was measured on 8 days. In 1887, 1·520 inches of rain fell on 16 days, and in 1888, 1·270 inches on 12 days.

High winds were noted on as many as 14 days, and attained the force of a gale on at least two occasions—namely, the 6th and 20th. The atmosphere was foggy on the 31st. Thunder was heard on the 7th and 11th, and lightning was seen on the 30th. Temperature reached or exceeded 70° in the screen on only two days—or 8 fewer than in August, 1887, and one more than in August, 1888.

On Thursday, the 1st, heavy showers began to fall at intervals, and continued to do so during the two next days.

Very unsettled showery weather prevailed throughout the week ending Saturday, the 10th, and from Monday evening until Wednesday morning the wind was fresh or strong in force. Rain fell in drenching showers, and occasional thunder and lightning accompanied the showers. The barometer stood relatively high in France and Germany, while a series of atmospherical depressions of some intensity passed in an easterly, or north-easterly, direction across the British Isles, the North Sea, and Scandinavia. Hence the prevalence of squally south-westerly (S. to W. and N.W.) winds and heavy thunder showers. In Dublin Sunday and Friday were tolerably fine days. Heavy showers fell on Monday and Tuesday. There was a moderate gale from W. to N.W. on Monday night. At 4 p.m. of Wednesday a local easterly sea breeze caused dense rainclouds to form, and at 5 30 p.m. a flash of lightning and clap of thunder were followed by torrents of rain—the measurement from the shower being ·450 of an inch in less than half an hour. On Saturday rain again fell in large quantities over the city for several hours. In Dublin the mean height of the barometer was 29·800 inches, pressure ranging from 30·072 inches at 9 a.m. of Thursday (wind, W.), to 29·53 inches, at 9 p.m. of Saturday (wind, W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·6°. The mean of the daily highest and lowest shade temperature was 59·1°. The thermometer rose to 68·6° in the shade on Wednesday, and fell to 52·0° on Tuesday. Rain fell on six days to the large amount of 2·341 inches—the maximal fall in 24 hours being 1·300 inches on Saturday (wind, S.E.). Thunder and lightning occurred on Wednesday.

A cyclonic distribution of atmospherical pressure and changeable weather held during the second week (11th–17th inclusive). On Sunday, the 11th, a complex area of low pressure lay over England and the North Sea—in Ireland, northerly winds and sharp thunder-storms were felt, and the weather was everywhere unsettled. By Tuesday morning, the centre of the system, which had become much deeper, had reached the Baltic, the barometer reading only 29·06 inches at Wisby, in Gothland. The weather was now fine in Ireland, but in the course of Tuesday night a new disturbance arrived off Donegal, accompanied by a heavy downpour of rain. Fresh or squally S.W. to N.W. winds prevailed until Thursday evening. On Friday afternoon another depression approached Ireland from the Atlantic, causing heavy showers and a renewal of squalls—first from S.W. and then from W. In Dublin the mean height of the barometer during the week was 29·836 inches, and pressure ranged from 30·085 inches, at 9 a.m. of Tuesday (wind N.N.W.), to 29·572 inches, at 9 p.m. of Friday (wind, S.W.) The mean dry bulb temperature at 9 a.m. and 9 p.m. was 58·3°. The mean of the daily highest and lowest readings of the screened thermometers was 59·4°. The highest shade temperature was 69·8° on Friday; the lowest was 50·2° on Tuesday. Rain fell on four days to the amount of ·539 inch—the heaviest fall in 24 hours being ·290 inch on Tuesday.

Exceedingly broken and unseasonable weather held throughout the third week (18th–24th inclusive). Large quantities of rain fell in all parts of the United Kingdom, France, and Scandinavia, and westerly (S.W. to N.W.) gales of unusual severity for August were reported from the coast stations. On Sunday, the 18th, the isobars ran in almost straight lines from W. to E. across the British Isles, the North Sea, Denmark, and Northern Germany—the resulting westerly wind was high, but no heavy rainfalls occurred. During the remainder of the week, however, a series of deep atmospherical depressions passed northeastwards across Ireland and Scotland, and to these the gales and rains were due. By Tuesday morning about 2 inches of rain had fallen over the greater part of Ireland, and a similar downpour had begun in Scotland. On Wednesday another depression travelled quickly across the North of Ireland and of England, renewing the bad weather. The remainder of the week was cold, showery, and squally, with strong N.W. winds. In Dublin the mean height of the barometer was 29·659 inches, the readings varying between 29·970 inches at 9 a.m. of Friday (wind, W.N.W.), and 29·145 inches at 3 p.m. of Wednesday (wind, W.) The mean temperature at 9 a.m. and 9 p.m. was 55·4°. The mean of the daily extreme temperatures was 56·0°. The shade thermometers rose to 62·6° on Sunday and Tuesday, and fell to 48·4° on Friday. Rain fell every day, the total measurement being 2·57[illegible] inches, of which 1·942 inch was registered on Monday.

A marked improvement in the weather took place in the last week (25th–31st inclusive), at all events over the greater part of the country. In the northwest and north of Ireland and in Scotland, indeed, bad weather prevailed from Tuesday to Friday, owing to the passage of a storm-centre northeastwards across those districts. But in the east and south of Ireland and in England very little rain fell, and a return of summer temperatures was observed. On Friday the thermometer rose to 83° in London and to 82° at Oxford and Cambridge. The wind was N.W. on Sunday and Monday. It then backed to W. and S.W., and freshened considerably, under the influence of a depression which skirted the west coasts of Ireland and Scotland, causing gales and rains as noticed above. On Friday the wind died down, and a light easterly breeze and clear sky succeeded a calm foggy morning on Saturday. In Dublin the mean height of the barometer was 30·129 inches, pressure ranging from 29·942 inches at 9 a.m. of Sunday (wind, N.N.W.), to 30·262 inches at 9 a.m. of Saturday (wind, calm). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·0°. The arithmetical mean of the daily maximal and minimal temperatures in the screen was 57·8°. The shade thermometers rose to 69·5° on Wednesday, having fallen to 46·4° on Sunday. Rain fell on two days to the amount of only ·020 inch—·010 inch on Monday, and ·010 inch on Friday. There was a smoke fog in the city on Saturday morning, and sheet lightning was seen on Friday night.

The rainfall in Dublin during the eight months ending August 31st has amounted to 18·893 inches on 134 days, compared with 9·455 inches on 96 days during the same period in 1887, 17·264 inches on 121 days in 1888, and a twenty-three years' average of 17·515 inches, on 128·1 days.

At Greystones, Co. Wicklow, the rainfall in August, 1889, was 4·410 inches, distributed over 17 days. Of this quantity, 2·050 inches fell on the 19th, ·520 inch on the 21st, and ·440 inch on the 2nd. Since January 1, 20·090 inches of rain have fallen at Greystones, on, however, only 83 days.

At Carrickmines, County Dublin, the rainfall in August was 5·641 inches, on 21 days; and since January 1, 20·483 inches have fallen at that station on 121 days.

EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of September, 1889.

Mean Height of Barometer, - - -	30·064 inches.
Maximal Height of Barometer (on 15th, at 9 a.m.),	30·455 „
Minimal Height of Barometer (on 23rd, at 9 p.m.),	29·504 „
Mean Dry-bulb Temperature, - - -	55·1°.
Mean Wet-bulb Temperature, - - -	53·1°.
Mean Dew-point Temperature, - - -	51·3°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·384 inch.
Mean Humidity, - - - - -	87·4 per cent.
Highest Temperature in Shade (on 11th), - -	69·7°.
Lowest Temperature in Shade (on 25th), - -	38·9°.
Lowest Temperature on Grass (Radation) (on 25th),	32·3°
Mean Amount of Cloud, - - - -	61·5 per cent.
Rainfall (on 13 days), - - - -	1·043 inches.
Greatest Daily Rainfall (on 19th), - - -	·350 inch .
General Directions of Wind, - - -	N.W., N., W.,

Remarks.

As in 1888, so in 1889, September proved a fine month, with a high mean barometer, winds from polar quarters—chiefly N.W., a moderate rainfall, and normal temperature. At the beginning of the month fogs were prevalent along the sea coast, and towards the close strong and squally winds were experienced on several days.

In Dublin the mean temperature (55·8°) was exactly equal to the average (55·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 55·1°. In the twenty-four years ending with 1888, September was coldest in 1866 and in 1882 (M. T. = 53·0°), and warmest in 1865 (M. T. = 61·4°). In 1880, the M. T. was as high as 58·6°; in the year 1879 (the "cold year"), it was 54·3°; in 1887, it was 54·0°; and in 1888, it was 54·4°.

The mean height of the barometer was 30·064 inches, or 0·147 inch above the average value for September—namely, 29·917 inches. The mercury rose to 30·455 inches at 9 a.m. of the 15th, and fell to 29·504 inches at 9 p.m. of the 23rd. The observed range of atmospherical pressure was, therefore, ·951 of an inch—that is, a little less than one inch. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 55·1°, or 2·5° below the value for August, 1889; that calculated by Kaemtz's formula—viz., *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 54·8°, or 0·3° below the average mean temperature for September, calculated in the same way, in the twenty years, 1865–84, inclusive (55·1°). The arithmetical mean of the maximal and minimal readings was 55·8°, compared with a twenty-three years' average of 55·8°. On the 11th the thermometer in the screen rose to 69·7°—wind, W.S.W.; on the 25th the temperature fell to 38·9°—wind, N.W. The minimum on the grass was 32·3° on the latter date. The rainfall was only 1·043 inches, distributed over 13 days—both rainfall and rainy days were much below the average. The average rainfall for September in the twenty-three years, 1865–87, inclusive, was 2·288 inches, and the average number of rainy days was 15·0. In 1871 the rainfall in September was very large—4·048 inches on, however, only 13 days. On the other hand, in 1865, only ·056 inch was measured on but three days.

High winds were noted on 7 days, but attained the force of a gale on only one occasion, the 18th. The atmosphere was foggy on the 1st, 2nd, 4th, 5th, 6th, and 16th. Heavy dews and wet fogs were experienced at night about the beginning of the month.

Quiet, but chiefly dull or foggy, weather prevailed during the week ended Saturday, the 7th. At the beginning and close the distribution of atmospherical pressure in Western Europe was anticyclonic, with resulting light variable winds or calm. In the interval between Monday and Thursday, however, a number of shallow, complex depressions passed slowly eastwards across the United Kingdom, causing close thundery weather, with much fog and gloom, and a damp air. Dublin escaped all electrical disturbances, but in the S.W. of Ireland and over the greater part of England thunderstorms were felt—the rainfall accompanying them not being specially heavy, except at a few stations such as Cambridge, where ·66 inch of rain was measured on Tuesday morning. Near Dublin dense vapour fogs hung about the coast from Wednesday to Saturday—this latter day proving brilliant in the extreme. In Dublin the mean height of the barometer was 30·164 inches, pressure ranging from 29·930 inches at 9 P.M. of Monday (wind S.E.) to 30·306 inches at 9 A.M. of Friday (wind S.E. by E.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 58·0°, while the arithmetical mean of the daily maxima and minima was also 58·0°. Temperature in the shade was highest on Wednesday (65·6°), and lowest on Sunday (48·5°) Rain fell in measurable quantity on Monday to the amount of ·020 inch.

There was but little change in the weather of the second week, 8th to 14th, inclusive. For the most part fine bright days prevailed, with light to moderate S.W. to northerly breezes. On Wednesday it was beautifully fine and summerlike. Temperature rose to 69·7°, and is reported to have risen to 75° at some of the Irish stations. On Saturday the barometer rose slowly with clouded sky, and northerly to north easterly wind; some slight drizzling rain fell, but although the cloud canopy held persistently during the day the afternoon was fine. In Dublin the mean height of the barometer was 30·163 inches, pressure ranging from 29·964 inches at 9 p.m. of Sunday (wind S.W.) to 30·430 inches at 9 a.m. of Saturday (wind N.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 60·4°. The arithmetical mean of the daily highest and lowest temperatures in the shade was 60·8°. On Wednesday the thermometer in the screen rose to 69·7°. On Monday the lowest reading for the week occurred, and was 53·3°. Rain was measured on four days, the total amount being, however, only ·139 inch, of which ·108 inch was entered to Sunday, the 8th.

There was a marked contrast in the weather of the third week (15th to 21st, inclusive) to that of the preceding one. Monday, the 16th, was cloudy, but fine. Tuesday was bright and fine, but much cirrus cloud was visible, foretelling the approach of a large depression, which subsequently arrived. Towards evening on Wednesday, the 18th, the barometer fell quickly, the sky clouded over and the wind, veering to north, freshened to a moderate gale. Heavy rain fell during the night and part of Thursday. For the rest of the week the weather remained broken, being for the most part cloudy and cold; heavy showers at intervals; wind varying from N.W. to N.E., and squally. Temperature fell considerably, and continued low. Slight ground frost was experienced in some parts of England at night. In Dublin the mean height of the barometer during the week was 30·016 inches, pressure decreasing from 30·455 inches, on Sunday at 9 a.m. (wind E.), to 29·646 inches on Saturday at 9 p.m. (wind N.) The mean dry bulb temperature at 9 a.m. and 9 p.m. was 52·4°, the mean of the daily maxima and minima being 53·7°. The shade temperature rose to 62·3° on Wednesday and fell to 40·2° on Saturday. The rainfall amounted to ·413 inch, on four days. The largest daily rainfall was ·328 inch on Wednesday.

The weather of the period from Sunday the 22nd, to Saturday, the 28th, inclusive, was in all respects changeable, and temperature in particular was unsteady. At the beginning the weather was clear and cold, with light northerly winds. On Monday a depression appeared off the S.W. of Ireland, whence it travelled acros the S. of England to the North Sea and Denmark. It caused a considerable rainfall in Dublin (·350 inch), where the wind shifted to the northward in its wake. Over the S. and E. of England, however, the downpour was much greater—1·9 inches being registered at Cambridge in the 48 hours ending 8 a.m. of Wednesday. Another brief spell of clear, cold, weather was followed on Thursday by freshening westerly (S.W. to N.W.) winds, a sudden and marked rise of temperature, and clouds and rain in Ireland and Scotland. On this occasion the precipitation was greatest in the N.W. and N. of Ireland—1·0 inch of rain being registered at Malin Head at 8 a.m. of Friday. Towards evening of this day the wind veered to N.W., temperature gave way, and the weather improved. In Dublin the mean height of the barometer was 29·936 inches—the extremes being—highest, 30·155 inches at 9 p.m. of Wednesday (wind, W.N.W.); lowest, 29·504 inches at 9 p.m. of Monday (wind, E.S.E.) The mean dry bulb temperature at 9 a.m. and 9 p.m. was 50·6°. The mean of the daily maxima and minima was 50·9°. The shade thermometers rose to 62·6° on Thursday, having fallen to 38·9 on Wednesday, when the grass minimum was 32·3°. Rain fell on four days to the amount of ·471 inch, the maximal fall in 24 hours being ·350 inch on Monday.

The last two days of the month were dry and bracing, with strong northerly winds, and alternate cloud and sunshine.

The rainfall in Dublin during the nine months ending September 30th has amounted to 19·936 inches on 147 days, compared with 10·968 inches on 112 days during the same period in 1887, 17·992 inches on 131 days in 1888, and a twenty-three years' average of 19·803 inches, on 143·1 days.

At Greystones, Co. Wicklow, the rainfall in September, 1889, was 1·030 inches, distributed over only 7 days. Of this quantity, ·760 inch fell on the 23rd. Since January 1, 21·120 inches of rain have fallen at Greystones, on, however, only 90 days.

— — 47·7 46 44 29·5 W., SW., E. 3·3 72 — — — — — — — — 29·669 —

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

42 5 89% EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of October, 1889.

Mean Height of Barometer, - - -	29·673 inches.
Maximal Height of Barometer (on 25th, at 9 p.m.),	30·293 „
Minimal Height of Barometer (on 7th, at 4 a.m.),	28·790 „
Mean Dry-bulb Temperature, - - -	47·5°.
Mean Wet-bulb Temperature, - - -	46·0°.
Mean Dew-point Temperature, - - -	44·2°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·292 inch.
Mean Humidity, - - - - -	88·9 per cent.
Highest Temperature in Shade (on 7th), - -	57·4°.
Lowest Temperature in Shade (on 14th), - -	35·2°.
Lowest Temperature on Grass (Radiation) (on 14th),	28·6°
Mean Amount of Cloud, - - - -	66·0 per cent.
Rainfall (on 22 days), - - - -	4·853 inches.
Greatest Daily Rainfall (on 19th), - - -	·944 inch .
General Directions of Wind, - - -	W., E.N.E.

Remarks.

A cold, rainy, squally month—westerly and south-westerly winds prevailing at first, while easterly and north-easterly winds held from the 18th to the 29th. A gale of exceptional violence blew over Ireland on the night of the 6th, the wind rising S.S.E. and subsequently veering to W. and W.N.W. There was another storm—less destructive in its effects—on the night of the 31st.

In Dublin the mean temperature (48·1°) was considerably below the average (49·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 47·5°. In the twenty-four years ending with 1888, October was coldest in 1880 (M. T. = 45·4°), and in 1885 (M. T. = 45·5°), and warmest in 1876 (M.T. = 53·1°). In 1886, the M. T. was as high as 52·0°; in the year 1879 (the "cold year"), it was 49·7°; in 1887 it was as low as 47·3°; and in 1888, it was 49·1°.

The mean height of the barometer was 29·673 inches, or 0·174 inch below the average value for October—namely, 29·847 inches. The mercury rose to 30·293 inches at 9 p.m. of the 25th, and fell to 28·790 inches at 4 a.m. of the 7th. The observed range of atmospherical pressure was, therefore, 1·503 inches—that is, a little more than an inch and one half. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 47·5°, or 7·6° below the value for September, and 10·1 below that for August, 1889; that calculated by Kaemtz's formula—viz. *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 47·2°, or 2·0° below the average mean temperature for October, calculated in the same way, in the twenty years, 1865–84, inclusive (49·2°). The arithmetical mean of the maximal and minimal readings was 48·1°, compared with a twenty-three years' average of 49·8°. On the 7th the thermometer in the screen rose to 57·4°—wind, S.S.W.; on the 14th the temperature fell to 35·2°—wind calm. The minimum on the grass was 28·6° on the 14th. The rainfall was 4·853 inches, distributed over 22 days—both rainfall and rainy days were largely in excess. The average rainfall for October in the twenty-three years, 1865–87, inclusive, was 3·111 inches, and the average number of rainy days was 17·4. In 1880 the rainfall in October was very large—7·358 inches on 15 days. In 1875, also, 7·049 inches fell on 26 days. On the other hand, in 1884, only ·834 inch was measured on but 14 days, and in 1868 only ·856 inch on 15 days. In 1888 the rainfall was 1·227 inches on 16 days. A lunar rainbow was seen on the 6th. High winds were noted on 10 days, and attained the force of a gale on four occasions, the 6th, 7th, 9th, and 31st. The atmosphere was more or less foggy in Dublin on the 10th, 14th, and 29th. Lightning was seen on the evenings of the 8th and 21st. Thunder was heard about 8 p.m. of the 21st. Hail fell with heavy showers of rain on the 7th and 25th.

Tuesday, the 1st, was a cool, fine day, with light northerly wind and dry air. On Wednesday, the 2nd, a complex series of atmospherical depressions came in from the westward over the United Kingdom, and in consequence the weather fell into a very dull and rainy state—more particularly as areas of high pressure existed both in the extreme North of Europe and over the Peninsula and South of France. At 8 a.m. of Friday, the 4th, the distribution of temperature was peculiar—at Loughborough in Leicestershire the thermometer marked 34°, at Yarmouth it was 51°, while at Bodö, in Norway (within the Arctic circle) it was as high as 58°. The rainfall was very heavy at many stations, and thunder and lightning were reported from the East and South of England on Thursday night and on Friday.

At first unsettled, stormy and rough, the weather afterwards became quiet, cool and fair in the week ending Saturday, the 12th. On Sunday, the 6th, the sky and clouds wore a very threatening look, and in the afternoon the barometer fell at the rate of a tenth of an inch an hour, as a very deep depression approached the North of Ireland from the Atlantic. In Dublin rain fell fitfully from 8 p.m., and at 10 p.m. a furious gale burst upon the city. The wind rose from S.S.E. to S., but veered to S.W., and finally to W.N.W., as the night wore on. At 10 30 p.m. a lunar rainbow was seen. The gusts were at times of hurricane force, so that much damage was done, especially to trees which were still in full leaf. The minimal pressure was 28·51 inches at Mullaghmore, Co. Sligo; in Dublin the barometer read 28·79 inches at 4 a.m. of Monday. Hail fell on the afternoon of this day, which was rough and squally. During Tuesday finer weather prevailed, but lightning was seen after nightfall. A new and deep depression arrived off the North of Ireland on Tuesday, causing a renewal of bad weather. After this the barometer rose slowly in Ireland, while some secondary disturbances kept the weather unsettled in England. At 8 a.m. of Friday the thermometer read 33° at Loughborough, 35° at Parsonstown, 48° in London (where there was a dense fog), and 53° at Prawle Point. In Dublin the mean height of the barometer was only 29·365 inches—pressure decreased from 29·757 inches at 9 a.m. of Sunday (wind, W.) to 28·790 inches about 4 a.m. of Monday (wind, S.W., force 11). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 46·8°. The mean of the daily highest and lowest temperature was 48·5°. The thermometer in the screen rose to 57·4° on Monday and fell to 39·1° on Friday. Rain fell on four days to the amount of ·746 inch, of which ·548 inch was entered to Sunday.

The earlier part of the week, ending Saturday, the 19th, was calm and fair in Dublin—during the latter part a rainstorm of exceptional violence prevailed. On Monday morning the first hoar-frost of the season was observed, the thermometer falling to 28·6° on the grass and to 35·2° in the screen. On Tuesday an extensive, but not deep, depression lay off the northwest of Ireland, so that the weather fell into an unsettled state, with S.W. winds and showers. Wednesday proved fine and bright, after a dull, damp, morning. In England a heavy rainfall occurred on this day. Thursday was at first fine, afterwards showery. At night the barometer gave way decidedly, as a deep V.-shaped depression slowly approached Ireland from the westward. Squally S.E. winds sprang up and a continuous rain set in, which in Dublin lasted to the close of the week. At noon on Saturday, the wind shifted from E. by S. to W. by S., as the centre of the low pressure system passed over the city. In Dublin the mean height of the barometer during the week was 29·626 inches. Pressure ranged between 29·941 inches, at 9 P.M. of Sunday (wind, W.N.W.), and 29·101 inches, a 9 P.M. of Saturday (wind, W.) The mean dry bulb temperature at 9 A.M. and 9 P.M. was 48·3° The mean of the daily highest and lowest readings of the thermometer was 49·2°. Temperature in the screen fell to 35·2° on Monday and rose to 57·3° on Tuesday. Rain fell on five days to the large amount of 2·014 inches—the measurement on Friday was ·780 inch, and that on Saturday was ·944 inch.

The week ended the 26th was again a period of unsettled rainy weather—especially on the east and south coasts of Great Britain and Ireland. In the central districts of the latter country, it was much finer and towards the close of the week some sharp frosts were experienced—the shade thermometer falling at Parsonstown, King's County, to 30° on Thursday and 28° on Friday. The geneal distribution of atmospherical pressure during the greater part of the week was peculiar—thus areas of high pressure existed over the extreme North of Europe and over the Mediterranean and Algeria, while a band of low pressure—in which there were several distinct minima—stretched across Central Europe from the south of the United Kingdom to Southern Russia. It was in this trough of low barometer that the weather was so bad. Towards the end of the week a depression was found over the Peninsula. Winter may be said to have set in over Northern Russia on Tuesday, the 22nd, when the thermometer marked 22° at 8 A.M. at Archangel. In Dublin every day was more or less showery, and on Monday evening vivid lightning was frequently seen to the southward, accompanied by thunder at 8 P.M. On Friday night there were heavy hail showers. The mean barometer reading was 29·836 inches. pressure ranging from 29·094 inches at 9 A.M. of Sunday (wind, E. by N.) to 30·293 inches at 9 P.M. of Friday (wind, N.E. by E.) The mean dry bulb temperature at 9 A.M. and 9 P.M. was 47·6°. The mean temperature deduced from the daily extremes was 47·1°. The thermometer rose to 53·0° on Monday, and fell to 38·1° on Thursday. Rain was measured on every day, the total quantity being ·900 inch, of which ·330 inch was registered on Friday, and ·321 inch on Monday.

The weather of the last few days of the month (27th–31st) varied considerably. A northerly air current held on Sunday and Monday, the 27th and 28th, in connection with a cyclonic system over the English Channel and Brittany. It caused clouds and showers on the east coasts of Great Britain and Ireland, but inland clear skies and frosty nights prevailed. On the 29th, S.W. winds spread over the whole country, temperature rose fast, and showers and squalls set in. A severe storm occurred on the night of the 31st.

The rainfall in Dublin during the ten months ending October 31st has amounted to 24·789 inches on 169 days, compared with 12·366 inches on 123 days during the same period in 1887, 19·219 inches on 147 days in 1888, and a twenty-three years' average of 22·914 inches on 160·5 days.

At Greystones, Co. Wicklow, the rainfall in October, 1889, was no less than 6·935 inches, distributed over 22 days. Of this quantity, 1·140 inches fell on the 6th, 1·280 inches on the 18th, and ·870 inch on the 19th. Since January 1st, 28·055 inches of rain have fallen at Greystones, on, however, only 112 days.

42·2 - 89%.

EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of November, 1889.

Mean Height of Barometer, - - -	30·191 inches.
Maximal Height of Barometer (on 16th, at 9 p.m.),	30·619 „
Minimal Height of Barometer (on 24th, at 7 p.m.),	29·290 „
Mean Dry-bulb Temperature, - - -	45·7°.
Mean Wet-bulb Temperature, - - -	44·4°.
Mean Dew-point Temperature, - - -	42·8°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·280 inch.
Mean Humidity, - - - - -	89·9 per cent.
Highest Temperature in Shade (on 7th), - -	59·7°.
Lowest Temperature in Shade (on 28th), - -	29·6°.
Lowest Temperature on Grass (Radiation) (on 28th),	23·9°
Mean Amount of Cloud, - - - -	62·7 per cent.
Rainfall (on 9 days), - - - -	·929 inch.
Greatest Daily Rainfall (on 22nd), - -	·359 inch.
General Directions of Wind, - - -	W., S.W., calm.

Remarks.

No greater contrast can be imagined than the weather of November, 1889, compared with that of November, 1888, which was the wettest and most stormy November experienced in Dublin for more than a quarter of a century. The past month was, on the contrary, calm, dull, and comparatively mild and rainless. An anticyclone held over western Europe with unusual persistence, and the warm, damp, southerly and westerly winds of the system brought a second autumn to the British Islands after the cold and rain of October. Only at the close of the month was a spell of wintry weather experienced in the rear of a remarkable series of V-shaped depressions which passed eastwards across north-western Europe.

In Dublin the mean temperature (46·4°) was decidedly above the average (44·5°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 45·7°. In the twenty-four years ending with 1888, November was coldest in 1878 (M. T. = 38·2°), and in 1870 (M. T. = 42·2°), and warmest in 1881 (M.T. = 50·3°). In 1886, the M. T. was as high as 46·4°; in the year 1879 (the "cold year") it was 43·9°; in 1887 it was as low as 42·6°; and in 1888, it was as high as 47·5°.

The mean height of the barometer was 30·191 inches, or 0·324 inch above the average value for November—namely, 29·867 inches, and 0·501 inch above the mean pressure in November, 1888—viz., 29·690 inches. The mercury rose to 30·619 inches at 9 p.m. of the 16th, and fell to 29·290 inches at 7 p.m. of the 24th. The observed range of atmospherical pressure was, therefore, 1·329 inches—that is, a little more than an inch and three-tenths. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 45·7°, or only 1·8° below the value for October, and 9·4° below that for September, 1889: that calculated by Kaemtz's formula—viz. *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 45·6°, or 1·9° above the average mean temperature for November, calculated in the same way, in the twenty years, 1865–84, inclusive (43·7°). The arithmetical mean of the maximal and minimal readings was 46·4°, compared with a twenty-three years' average of 44·5°. On the 7th the thermometer in the screen rose to 59·7°—wind, W.S.W.; on the 28th the temperature fell to 29·6°—wind W. The minimum on the grass was 23·9° on the 28th. The rainfall was only ·929 inch, distributed over 9 days—both rainfall and rainy days fell largely short of the values for the preceding month of October—viz., 4·853 inches on 22 days. The average rainfall for November in the twenty-three years, 1865–87, inclusive, was 2·340 inches, and the average number of rainy days was 16·9. The rainfall and the rainy days, therefore, were very much below the average. In 1876 the rainfall in November was large—3·614 inches on 20 days. In 1872, also, 3·414 inches fell on 24 days; in 1887, 3·012 inches fell on 18 days, and in 1888 6·540 inches fell on 26 days. On the other hand, in 1870, only 1·218 inches were measured on but 11 days, and in 1879 only 1·251 inches on but 10 days. The vast excess of the rainfall in 1888 and the equally marked deficit in 1889 are evident from these figures.

A lunar halo appeared on the 4th, and a solar halo on the 14th. High winds were noted on 5 days, but attained the force of a gale on only one occasion, the 1st. The atmosphere was more or less foggy in Dublin on the 11th, 13th, 14th, 16th, 17th, 18th, 19th 23rd, and 30th. Lightning was seen on the night of the 25th. Hail fell on the 1st. Sleet and snow fell on the 26th and 27th. An aurora borealis was seen on the night of the 26th.

The month opened with a strong S.W. gale—the only storm which was felt throughout in Dublin. It was followed by a transitory fall of temperature and some cold showers.

Westerly winds, and dull, mild weather were the leading features of the week ending Saturday, the 9th. At first an irregular depression was passing across Great Britain eastwards; it was rainy in England, showery in Ireland, fair and cold over the greater part of Scotland. Monday, the 4th, was cool and fair in Dublin. Some rain fell on Tuesday morning, but this day also proved fine. On Wednesday morning a large Atlantic anticyclone was found off the South of Ireland, whence it extended across the Bay of Biscay to the North of Spain. On the afternoon of this day temperature rose decidedly, and the weather became warm and damp—remaining so until the end of the week. At 8 a.m. of Thursday the thermometer read 31° at Paris, but 59° at Aberdeen, where it rose to 62° later in the day. This remarkable reading for November was also recorded at Loughborough. Even in Northern Russia very little frost was felt during this period. In Dublin the mean height of the barometer was 30·172 inches. Pressure increased from 29·544 inches, at 9 a.m. of Sunday (wind, W. by S.) to exactly one inch higher, namely, 30·544 inches at 9 a.m. of Friday (wind, W.S.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 49·7°, and the mean of the daily extremes of temperature was 50·4°. The thermometer in the shade rose to 59·7° on Thursday, having fallen to 39·3° on Monday. Rain fell on two days to the amount of ·068 inch, of which ·050 inch was entered to Friday. At 8 a.m. of that day the barometer read 30·61 inches at Lorient, and 30·60 inches at Rochefort and at Valentia, in Kerry.

The second week (10th–16th, inclusive) was a period of singularly mild, quiet weather. The distribution of atmospherical pressure was anticyclonic, except in the far North, where depressions were found—of, however, no great intensity. At the beginning of the period, the centre of a large anticyclone, in which the barometer was as high as 30·50 inches, lay off the extreme S.W. of Ireland. The weather was dull and mild. This high pressure system then moved eastwards, decreasing at the same time in intensity. By Tuesday morning its centre had reached Prussia. A sharp morning frost with fog prevailed over central England on this day, but in Ireland it remained very mild, dull, and damp. Up to and including Friday, the 15th, the anticyclone held over the Continent. On this day a V-shaped depression of no great depth came in over Ireland from the Atlantic. A squally S.W. wind and showers were the result, but the barometer quickly recovered, and Saturday was bright and still, with light winds from N.W. to N.E., and a smoke fog at night. In Dublin the mean height of the barometer was 30·351 inches. Pressure ranged from 30·190 inches at 9 p.m. of Thursday (wind, S.S.W.), to 30·619 inches at 9 p.m. of Saturday (wind, calm). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 48·5°. The mean of the daily highest and lowest shade temperatures was 49·1°. The thermometer rose to 55·7° on Friday, and fell to 41·8° on Saturday. Rain fell on Friday night to the amount of ·030 inch—this was the only measurable rainfall during the week. The air was foggy on Monday, Wednesday, Thursday, and Saturday. A solar halo was seen on Thursday forenoon.

Quiet, mild, damp, and foggy weather held during the greater part of the third week (17th–23rd inclusive). Only on the evening of Thursday, the 21st, did the wind freshen to a squally or stiff breeze, which reached the force of a gale in the West of Ireland. In England, Germany, and France temperature decreased greatly as the week advanced; but the season remained singularly open in Scotland and even in Scandinavia. This was brought about by the persistent presence of a large anticyclone over Western Europe. In its centre, which lay over Germany, the barometer remained above 30·70 inches from Sunday night until Thursday afternoon—the highest reading of all being 30·76 inches, recorded at Berlin and Wiesbaden on Wednesday. On Thursday night a V-shaped depression advanced over Ireland from the S.W. It caused the strong winds above referred to and a heavy fall of rain on Friday. In the rear of this low pressure system, of no great depth, the barometer again rose quickly and the sky cleared with a sudden fall of temperature. Saturday was at first fair and bright, but in the afternoon a dense vapour fog formed. In Dublin the mean height of the barometer was 30·413 inches, pressure ranging from 30·613 inches at 9 A.M. of Sunday (wind, calm) to 30·058 inches at 9 A.M. of Friday (wind, S. by W.) The mean dry bulb temperature at 9 A.M. and 9 P.M. was 46·3°. The mean of the daily highest and lowest temperatures was 47·0°. The screened thermometers rose to 57·5° on Friday, having fallen to 36·3° on Sunday. Rain was measured on three days, the total quantity being ·469 inch, and the maximal fall in 24 hours being ·359 inch on Friday.

A remarkable and sudden change from autumn to winter took place at the beginning of the last week ending Saturday, the 30th. It proved wintry in the extreme. On Sunday a general and decided fall of the barometer over Western Europe ushered in a complex series of V-shaped depressions, which at 8 A.M. of Monday extended as a trough of low pressure from the W. coast of Norway to the S. of France. In front of this trough the wind was strong from S. and S.W., with comparatively high temperature and rain—in its rear, fresh N.W. and N., winds were blowing, with a keen, dry air and showers of sleet, hail, and snow. On Monday night thunder and lightning occurred in the North-west of England. At 8 A.M. of Tuesday the barometer was down to 28·52 inches at Bodö in Norway—a frost prevailed, with snow squalls in many places. At night displays of aurora and lightning were reported from Ireland and Scotland. Wednesday was a very cold day—temperature did not rise above 35·6° in Dublin. On Thursday an anticyclone passed south-eastwards across Munster, temperature rose and S.W. winds became established in Ireland. In Dublin the mean height of the barometer was 29·964 inches—pressure ranging between 29·290 inches at 7 P.M. of Sunday (wind, S.W.) and 30·387 inches at 9 A.M. of Thursday (wind, W.) The mean dry bulb temperature at 9 A.M. and 9 P.M. was 38·5°. The mean of the daily highest and lowest thermometer readings was 38·9°. Temperature rose to 52·5° on Sunday, and fell to 29·6° on Thursday. Lightning was seen on Monday night, rain fell on Sunday to the amount of ·275 inch. Light sleet and snow showers on Monday, Tuesday, and Wednesday yielded no measurable rainfall.

The rainfall in Dublin during the eleven months ending November 30th has amounted to 25·718 inches on 178 days, compared with 15·378 inches on 141 days during the same period in 1887, 25·768 inches on 173 days in 1888 and a twenty-three years' average of 25·254 inches on 177·4 days.

At Greystones, Co. Wicklow, the rainfall in November, 1889, was 1·080 inches distributed over 9 days. Of this quantity ·440 of an inch fell on the 23rd, and ·240 of an inch on the 24th. Since January 1, 29·135 inches of rain have fallen at Greystones, on, however, only 121 days.

EXTRA REMARKS.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N. Long. 6° 15′ W., for the Month of December, 1889.

Mean Height of Barometer,	30·096 inches.
Maximal Height of Barometer (on 5th, at 9 p.m.),	30·730 „
Minimal Height of Barometer (on 10th, at 3 p.m.),	29·260 „
Mean Dry-bulb Temperature,	43·3°.
Mean Wet-bulb Temperature,	41·4°.
Mean Dew-point Temperature,	39·1°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·242 inch.
Mean Humidity,	85·7 per cent.
Highest Temperature in Shade (on 17th),	56·6°.
Lowest Temperature in Shade (on 6th and 12th),	30·9°.
Lowest Temperature on Grass (Radiation) (on 12th),	22·9°.
Mean Amount of Cloud,	58·4 per cent.
Rainfall (on 15 days),	1·554 inch.
Greatest Daily Rainfall (on 19th),	·274 inch.
General Directions of Wind,	W., S.W., S.

Remarks.

A quiet, mild, but damp month, with prevalent south-westerly winds (that is, winds from points between S. and W.). These conditions were determined by the persistence of an anticyclone to the eastward and south-eastward, while numerous areas of low pressure skirted the western shores of Ireland, Scotland, and Norway in their passage northeastwards across the Atlantic Ocean and the Norwegian Sea. In central and south-eastern England sharp frost was felt towards the close of the month, while the weather remained open in Ireland and Scotland.

In Dublin the mean temperature (43·8°) was—as in November—above the average (41·1°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 43·3°. In the twenty-four years ending with 1888, December was coldest in 1878 (M. T. = 32·8°), and in 1874 (M. T. = 36·8°), and warmest in 1865 (M.T. = 46·2°). In 1886, the M. T. was as low as 37·9°; in the year 1879 (the "cold year") it was also 37·9°. In 1887 the M. T. was 39·9°; in 1888 it was 43·6°, or very nearly the same as in 1889.

The mean height of the barometer was 30·096 inches, or 0·214 inch above the average value for December—namely, 29·882 inches. The mercury rose to 30·730 inches at 9 p.m. of the 5th, and fell to 29·260 inches at 3 p.m. of the 10th. The observed range of atmospherical pressure was, therefore, 1·470 inches—that is, a little less than one inch and a-half. The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 43·3°, or 2·4° below the value for November, and 4·2° below that for October, 1889; that calculated by Kaemtz's formula—viz. *min.* + (*max.*—*min.* × ·41) = *Mean Temp.*—from the means of the daily maxima and minima was 42·9°, or 2·4° above the average mean temperature for December, calculated in the same way, in the twenty years, 1865–84, inclusive (40·5°). The arithmetical mean of the maximal and minimal readings was 43·8°, compared with a twenty-three years' average of 41·1°. On the 17th the thermometer in the screen rose to 56·6°—wind, W.S.W.; on the 6th and the 12th the temperature fell to 30·9°—wind S.S.W. on both occasions. The minimum on the grass was 22·9° on the 12th. There were 4 days of frost in the screen and 20 days of frost on the grass.

The rainfall was 1·554 inches, distributed over 15 days. The average rainfall for December in the twenty-three years, 1865–87, inclusive, was 2·419 inches, and the average number of rainy days was 17·0. The rainfall, therefore, was decidedly below the average, while the rainy days were also below it. In 1876 the rainfall in December was very large—7·566 inches on 22 days. In 1872, 4·932 inches fell on as many as 24 days; and in 1868 (which was otherwise a fine and dry year), 4·749 inches fell on as many as 27 days. On the other hand, in 1867, only ·771 of an inch was measured on 13 days; and in 1871, the December rainfall was only ·797 of an inch on 15 days. In 1885, only ·742 of an inch of rain was measured on but 10 days, but in 1886 the rainfall was 3·348 inches, distributed over as many as 21 days. In 1887 ("the dry year"), the rainfall was 1·223 inches on 19 days; in 1888, it was 2·911 inches on 17 days.

A lunar halo appeared on the 31st. High winds were noted on 13 days, and attained the force of a gale on only two occasions, the 12th and the 19th. The atmosphere was more or less foggy in Dublin on the 5th, 6th, 14th, 15th, 21st, 29th, and 30th. Lightning was seen on the night of the 12th. A little sleet fell on the 28th.

Almost throughout the first week (1st–7th, inclusive) atmospherical pressure was abnormally high over Europe. On Thursday, the 5th, indeed, the barometer read 31·00 inches and upwards in Central Russia, and exceeded 30·50 inches all over Scandinavia, Northern Germany, and the British Islands. Considerable cold existed within the limits of this vast anticyclone. It was most intense in a band stretching from the north and centre of Russia to Sweden as well as through Germany to France. At the beginning of the week the weather was dull, mild, and windy in Ireland, which was under the influence of atmospherical depressions passing northwards across the Atlantic; while calms or light S.E. to E. winds and sharp frosts prevailed in England. On Tuesday temperature gave way in Ireland also, and frosts occurred on Thursday and Friday. During the afternoon of the latter day a S.W. wind freshened, temperature rose and rain set in. Saturday was fair, bright and cold in Ireland, snowy in England. In Dublin the mean height of the barometer was 30·395 inches—pressure ranging between 30·216 inches at 9 a.m. of Sunday (wind, S.) and 30·730 inches at 9 p.m. of Thursday (wind, also S.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 40·9°. The mean of the daily highest and lowest shade temperatures was 41·7°. The thermometer rose to 49·6° on Sunday and fell to 30·9° on Friday. Rain fell on Friday to the amount of ·240 inch; and on the morning of Sunday, the 8th, to the amount of ·030 inch—total measurement, ·270 inch, on two days.

Particularly changeable weather prevailed in all districts during the second week (8th–14th, inclusive) pressure, temperature, and wind being variable beyond measure. Several extensive and even deep depressions travelled north-eastwards across the Atlantic, British Isles, and Scandinavia—as these systems approached, the wind became southerly, temperature rose, clouds increased, and rain fell; as they passed away the wind veered to W. and N.W. and fell light, with clearing skies and frost. Sunday was dull and rainy. Monday was showery, with fine intervals. Tuesday and Wednesday were cold and fair. Thursday was at first frosty—then rainy, with squalls; lightning was seen in the evening. Friday was a fine, cold day. Saturday was frosty and foggy in the forenoon; cloudy and milder in the afternoon. In Dublin the mean height of the barometer was 29·807 inches—pressure ranged from 30·226 inches at 9 a.m. of Sunday (wind, S.W.) to 29·260 inches at 3 p.m. of Tuesday (wind, W.N.W.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 41·2°. The mean of the daily maxima and minima was 41·8°. On Monday the thermometers in the screen rose to 53·9°, on Thursday they fell to 30·9°. The lowest temperature on the grass was 22·9° on Thursday. The rainfall amounted to ·333 inch, on four days. Of this amount, ·180 inch was registered on Sunday and ·100 inch on Thursday. There was a dense smoke fog on the forenoon of Saturday and lightning occurred on Thursday evening.

A south-westerly air-current and open unsettled weather prevailed throughout the third week ending Saturday, the 21st. Atmospherical pressure was persistently high over France and Germany, low to the north-westward of the British Isles and over Norway. In the area covered by the high pressure, calms or variable winds and hard frost prevailed. In the British Isles and Scandinavia, on the contrary, squally winds between S.W. and N.W. and frequent showers, with but little frost, were prevalent. Sunday was a cool, foggy day in Dublin—the max. temp. being only 41·8°. Monday was mild and damp, and *at night* the thermometer rose to 55·0°. The next three days were squally; on Thursday evening rain fell heavily all over Ireland and in parts of Great Britain later on. Friday was clear and cold. Saturday—at first fine—proved wet and dull in the afternoon. In Dublin the mean height of the barometer was 30·025 inches—pressure ranging from 30·403 inches, at 9 a.m. of Sunday (wind, W., light) to 29·451 inches at 9 p.m. of Saturday (wind, S.E.). The mean dry bulb temperature at 9 a.m. and 9 p.m. was 44·8°. The mean of the daily max. and min. readings of the screen thermometers was 44·7°. The absolute maximum was 56·6° on Tuesday; the absolute minimum was 34·6° on Sunday. Rain fell on five days to the amount of ·654 inch—the heaviest falls in 24 hours being ·274 inch on Thursday and ·251 inch on Saturday. There was a very dense fog over the city on Sunday.

During the week ended Saturday, the 28th, the distribution of atmospherical pressure was of a mixed type—at first chiefly cyclonic, especially in the far N. and N.W.; afterwards, anticyclonic. The weather was generally open, and on Christmas Day frost was absent from the British Isles, France, Western Germany, and the greater part of Scandinavia. This was the more remarkable as on the 23rd and 24th very low temperatures were reported from the Gulf of Bothnia, the 8 a.m. readings on those days at Haparanda being +7° and −4° F. respectively. Up to and including Tuesday, the 24th, rain fell very generally—the weather afterwards became unusually dry, mild and quiet. In Dublin, Sunday was dull and damp. Monday showed an improvement, but at night there were squalls and rain. Christmas Eve was bright and bracing, and three beautiful days followed—mild, sunny, and dry, quite unlike midwinter. Saturday was dull, cold, and showery, with light variable winds. In Dublin the mean height of the barometer was 30·109 inches, pressure ranging from 29·460 inches at 9 a.m. of Sunday (wind, S.W.) to 30·473 inches at 9 p.m. of Thursday (wind, S.S.W.). At 8 a.m. next morning (Friday) readings as high as 30·94 inches at Wisby, in Gothland, and 30·90 inches at Stockholm, were recorded. In Dublin the mean dry bulb temperature at 9 a.m. and 9 p.m. was 45·4°. The mean of the daily highest and lowest temperatures was 46·2°. The screened thermometers rose to 55·6° in the night of the 23rd–24th, and fell to 37·6° on Saturday. The rainfall amounted to ·287 inch, and was distributed over three days—·173 inch fell on Monday, and ·099 inch on Saturday.

The last three days of the month were mild and chiefly fine in Dublin, while severe frost prevailed in the S.E. and centre of England.

The rainfall in Dublin during the year ending December 31st has amounted to 27·272 inches on 193 days, compared with 28·679 inches on 190 days in 1888, 16·601 inches on 160 days in 1887, and a twenty-three years' average of 27·673 inches on 194·4 days.

At Greystones, Co. Wicklow, the rainfall in December, 1889, was 2·125 inches distributed over 11 days. Of this quantity ·580 of an inch fell on the 28th, ·350 of an inch on the 13th, and ·320 of an inch on the 19th. Since January 1, 31·260 inches of rain have fallen at Greystones, on, however, only 132 days. In 1888 the corresponding figures were 34·540 inches of rain on 138 days.

RAINFALL IN 1889,

At 40 Fitzwilliam-square, West, Dublin.

Rain Gauge:—Diameter of funnel, 8 in. Height of top—Above ground, 3 ft. 2 in.; above sea level, 57 ft.

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days on which ·01 or more fell
	Inches	Depth	Date	
January,	2·213	1·221	11th	16
February,	2·449	·742	10th	20
March,	1·076	·381	19th	17
April,	2·607	·420	11th	21
May,	2·131	·509	5th	17
June,	·100	·032	8th	6
July,	2·570	·624	22nd	15
August,	5·747	1·942	19th	22
September,	1·043	·350	23rd	13
October,	4·853	·944	19th	22
November,	·929	·359	22nd	9
December,	1·554	·274	19th	15
Total,	27·272	—	—	193

The rainfall was four-tenths of an inch in defect of the average annual measurement of the twenty-three years, 1865–87, inclusive—viz., 27·673 inches.

It will be remembered that the rainfall in 1887 was very exceptionally small—16·601 inches, the only approach to this measurement in Dublin being in 1870, when only 10·859 inches fell, and in 1884, when the measurement was 20·467 inches. In seven of the twenty-three years in question the rainfall was less than 26 inches, and in 1885 it was 26·614 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32·966 inches—or as nearly as possible double the fall of 1887—fell on 220 days. Only twice since these records commenced has the rainfall in Dublin exceeded that of 1886—namely, in 1872, when 35·566 inches fell on 238 days, and in 1880, when 34·512 inches were measured on, however, only 188 days.

In 1889, there were 193 rainy days, or days upon which not less than ·01 inch of rain (one hundredth of an inch) was measured. This was slightly in defect of the average number of rainy days, which was 194·4 in the twenty-three years, 1865–87, inclusive. In 1868—the warm dry year of recent times—as well as in 1887, the rainy days were only 160, and in 1870 they were only 145. In 1868, however, the rainfall amounted to 24·935 inches, or more than 8 inches above the measurement in 1887, and even in 1870, 20·859 inches were recorded. Included in the 193 rainy days in 1889 are 15 on which snow or sleet fell, and 23 on which there was hail. In February hail was observed on 7 days, in March on 5 days, and in April on 4 days. Hail also fell twice in January and October, and once in May, July, and November. Snow or sleet fell on 1 day in January, on 8 days in February, on 2 days in March, on 1 day in April, on 2 days in November, and on 1 day in December. Thunder and lightning occurred on five occasions during the year—once in April, July, and October, and twice in August. Lightning was also seen on one occasion in each of the last three months of the year.

The rainfall was distributed as follows:—5·738 inches fell on 53 days in the first quarter, 4·838 inches on 44 days in the second, 9·360 inches on 50 days in the third, and 7·336 inches on 46 days in the fourth and last quarter.

Of the 9·360 inches which fell in the third quarter of the year, 5·747 inches were measured in August.

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